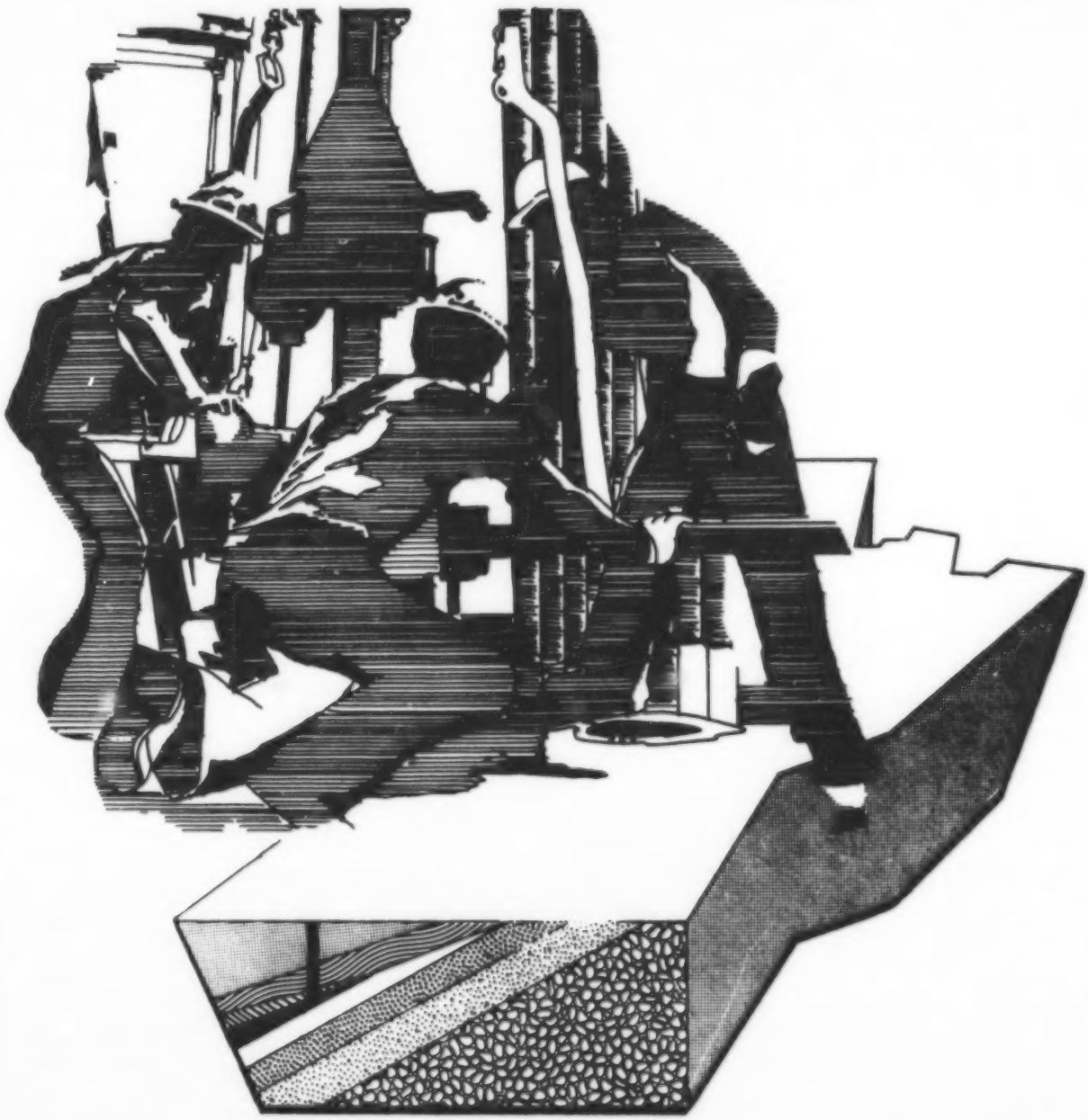
OIL ACTIVITY REVIEW 1989



This publication is available in large print, audiotape or braille on request.

Manitoba Energy and Mines
Petroleum

Manitoba Oil Activity Review

1989

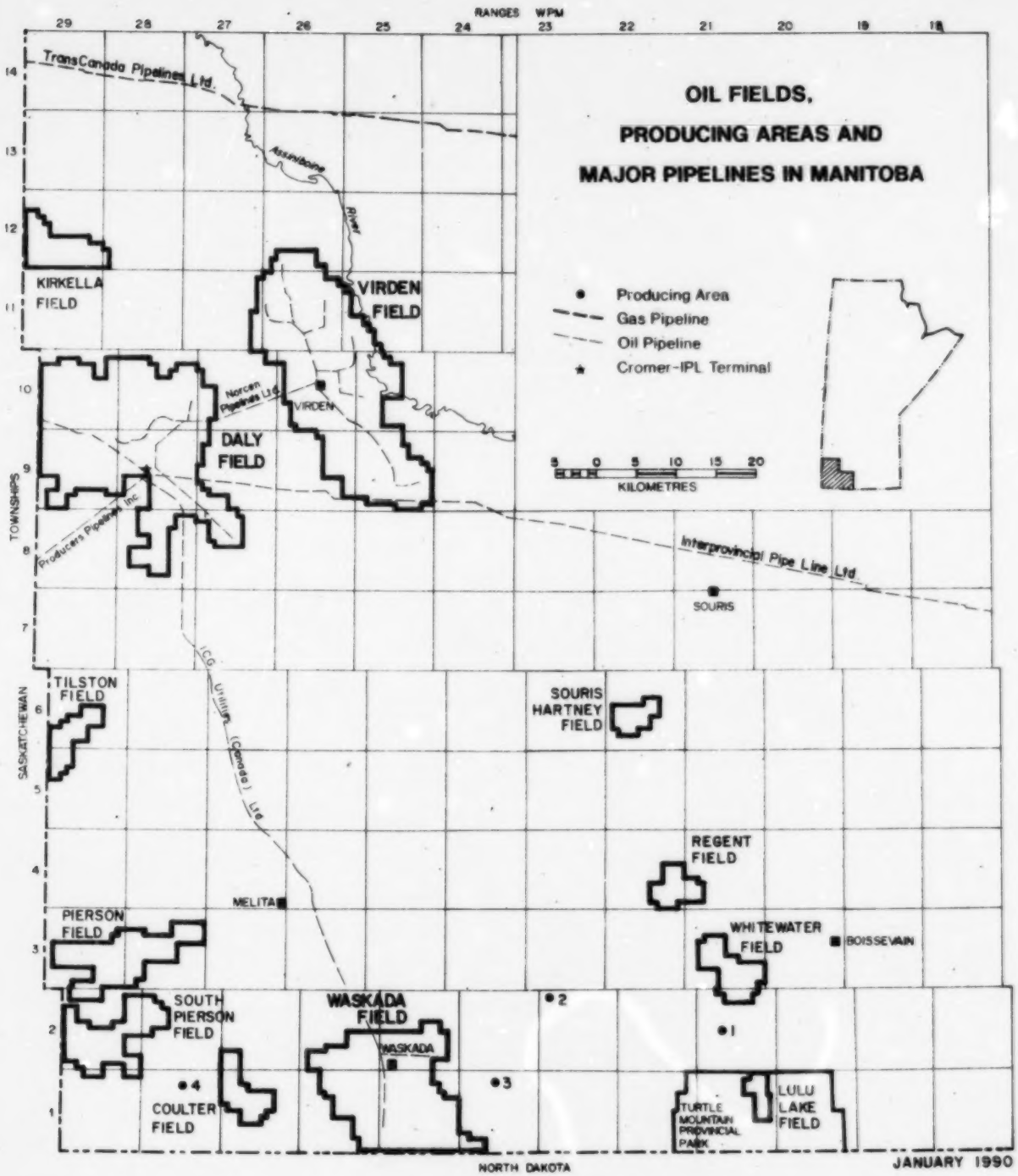
April, 1990

Manitoba Energy & Mines
Petroleum

90-06354//

1989 Highlights

- During 1989, 52 wells were drilled in Manitoba, a 28% decrease from 1988's total of 72 wells.
- Manitoba's annual oil production was down approximately 6% from 1988 production to 722 820 m^3.
- The value of oil produced increased to approximately $90.1 million, a 15% increase from 1988.
- Provincial revenues from the oil industry (royalties, oil taxes, lease sales and lease rentals) increased to $9.4 million during 1989, representing a 11% increase from 1988 ($8.6 million).
- Gross royalties payable to freehold mineral owners were estimated to be $10.0 million in 1989 (Federal and Provincial tax liabilities included).
- Surface rights owners received approximately $2.7 million from rental payments during 1989.
- Municipal tax assessments on oilfield equipment and pipelines were estimated to be $9.1 million (with taxes paid amounting to approximately $1.8 million).
- Oil industry expenditures in Manitoba were estimated to be $62 million in 1989, a 2% decrease from 1988.
- Two geophysical programs were licensed in 1989, covering 40 kilometres at an estimated cost of $115,000.
- Two sales of Crown oil leases covering 2 832 hectares generated $240 548 in revenue to the province in 1989, down 33 percent from 1988's total of $358,462.
- As of December 31, 1989 there were 12 oil fields and 117 non-confidential oil pools designated in the province.
- Crude oil prices fluctuated throughout the year between $18 - 22/bbl. In 1989, Manitoba's average crude oil price increased by 22% to $19.81/bbl, compared with 1988's average of $16.25/bbl.
- The Federal Government announced the end of the Canadian Exploration and Development Incentive Program (CEDIP) on April 27, 1989.



OTHER PRODUCING AREAS

1. Mountainside
2. Deloraine
3. Goodlands
4. Lyleton

TABLE OF CONTENTS

	Page
1989 Highlights	i
Crown Oil and Natural Gas Lease Sales	1
Crown Oil and Natural Gas Leases	4
Freehold Mineral Owner's Leasing and Revenue	6
Geophysical Activity	6
Drilling Activity	9
Areas of New Interest	9
Production and Markets	17
Oil Prices	26
Value of Production	26
Provincial Revenue from Oil Production	26
Municipal Tax Assessments	34
Surface Owners	34
Waskada Gas Plant	35
Manitoba Drilling Incentive Program (1979-1986)	35
Manitoba Drilling Incentive Program (1987-1991)	36
Enhanced Oil Recovery Incentive Program	36
Oil Reserves	37
Petroleum Industry Employment	39
Industry Expenditures	39
1990 Forecast	41

LIST OF TABLES

	Page
Oil Lease and Reservation Sale Statistics (1947-89)	2
Geophysical Activity (1973-89)	8
Summary of 1989 Geophysical Programs	8
1989 Drilling Statistics by Operator and Contractor	10
1989 Drilling Activity by Area	10
1989 Exploratory Well Cased for Production	10
Drilling Activity (1951-89)	11
Summary of 1989 Drilling Activity (by Month)	13
Exploratory Wells Drilled in Manitoba by Formation (1974-89)	14
Detailed Drilling Statistics (1981-89)	15
Manitoba Non-Abandoned Wells (Dec. 1989)	16
1989 Annual Production by Operator and Field	18
1989 Monthly Crude Oil Production by Field	19
Manitoba Oil and Water Production (1951-89)	20
Comparison of 1989 vs 1988 Oil Production by Field	24
Disposition of Manitoba Produced Crude Oil (1951-89)	25
Manitoba Crude Oil Production and Sales Value (1951-89)	29
Direct Revenues to Crown (1951-89)	33
Crude Oil Reserves (1973-89)	37
Oil Field Statistics 1989	42

LIST OF FIGURES

	Page
Oil Fields in Manitoba	ii
Crown Lease Sales (1979-89)	3
Crown Oil & Gas Rights Under Disposition (1979-89)	5
Geophysical Activity (1979-89)	7
Wells Drilled in Manitoba (1951-89)	12
Oil Producing Wells in Manitoba (1951-89)	21
Manitoba Crude Oil Production (1951-89)	22
Manitoba Oil and Water Production (1951-89)	23
Monthly Crude Oil Prices (1986-89)	27
Manitoba Average Crude Oil Price (1951-89)	28
Value of Oil Production (1951-89)	30
Crown Royalties and Taxes from Oil Production (1979-89)	31
Direct Revenues from Oil Production (1987-89)	32
Manitoba Established Oil Reserves (1951-89)	38
Petroleum Industry Expenditures in Manitoba (1979-89)	40
Geological Formations Table	43

Crown Oil and Natural Gas Lease Sales

Two Crown oil and natural gas lease sales were held in 1989. Thirty-one leases covering 2 832 hectares were sold for a total of $240,548 down 33% from 1988's lease revenue total of $358,462.

In the first lease sale, held on April 26, 1989, the average lease bonus price paid per hectare was $47.02, whereas in the November 8, 1989 sale, the average lease bonus price increased by 182% to $132.75 per hectare. Compared with the two sales held in 1988, the average lease bonus price in 1989 decreased by 19%, from $101.62 to $81.89/hectare. No exploration reservations were sold.

The highest price in the April sale was $195.31 per hectare paid by Empire Land Services (1987) Ltd. for a parcel located south east of Oak Lake. The highest price per hectare in the November sale was paid by Omega Hydrocarbons Ltd. ($400.17 per hectare) for a parcel just east of Waskada.

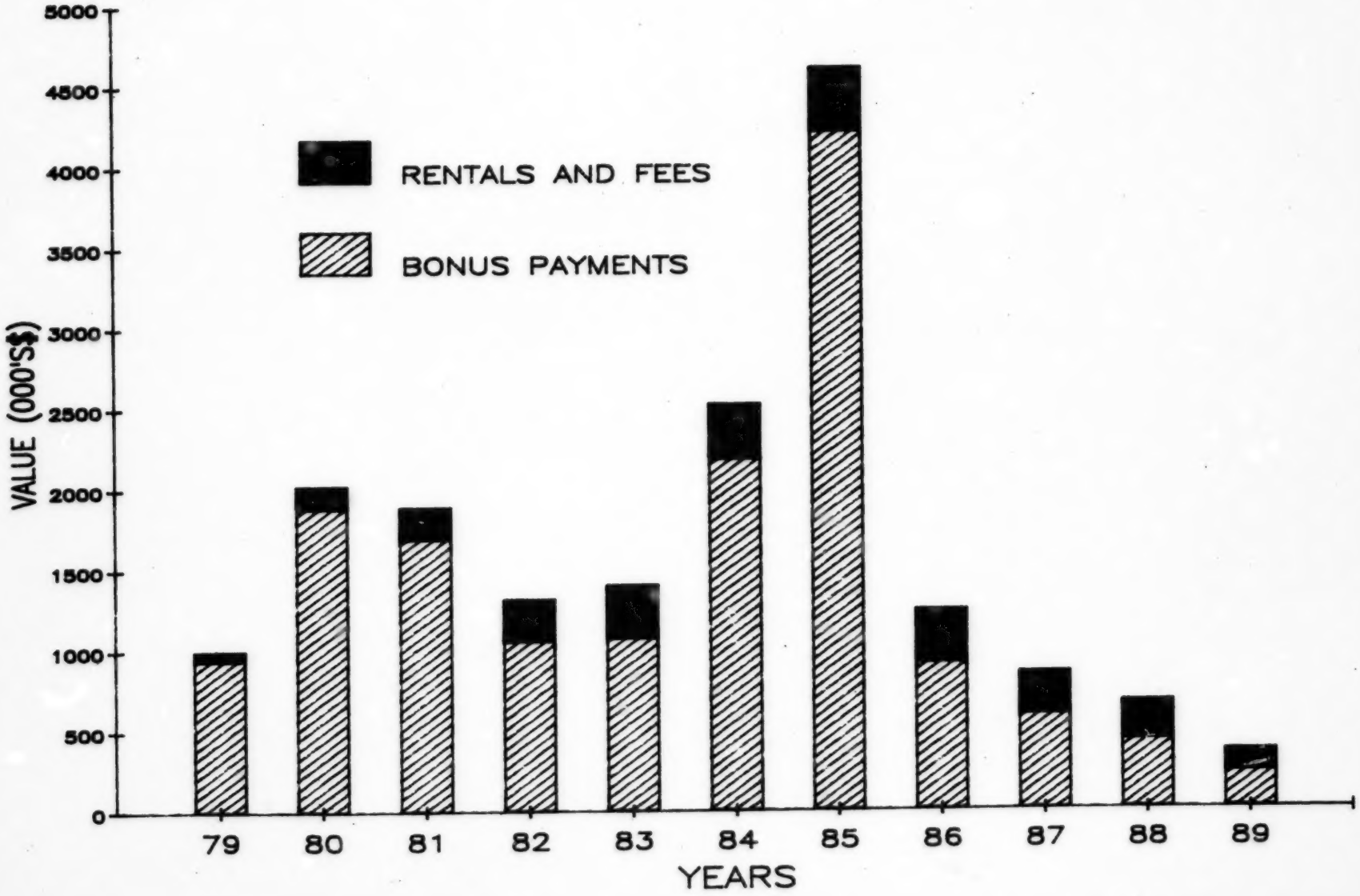
Lease sales in 1989 generated the lowest revenue since lease sales were re-implemented in 1979.

Since Crown oil and gas lease sales resumed in 1979, the province has received $15,505,853 in revenue from the disposition of Crown oil leases and exploration reservations (refer to table for annual sale statistics).

MANITOBA CROWN OIL LEASE AND RESERVATION SALE STATISTICS 1947 - 1989

	LEASE SALES						RESERVATION SALES						
YEAR	NO. OF LEASES SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	LEASE REVENUE ($)	NO. OF RES. SOLD	AREA (ha)	BONUS ($)	AVG. PRICE ($/ha)	HIGHEST PRICE ($/ha)	RES REVENUE ($)	TOTAL REVENUE FROM SALES ($)
1947-53	DATA UNAVAILABLE												
1954	31	4 184	82,814	19.79	37.37	88,291	0	0	0	0	0	0	88,291
1955	140	32 247	579,801	17.98	62.58	620,751	1	8 778	5,854	.67	.67	6,213	626,964
1956	28	4 534	43,902	9.68	79.09	49,682	4	255 016	105,587	.41	1.33	106,587	156,269
1957	16	4 568	100,373	21.97	44.71	106,174	2	48 820	3,256	.07	.08	3,756	109,931
1958	0	0	0	0	0	0	1	10 291	101	.01	.01	351	351
1959	1	777	505	.65	.65	1,475	2	11 478	11,879	1.03	2.42	12,379	13,854
1960	1	65	4,103	63.12	63.12	4,193	0	0	0	0	0	0	4,193
1961	0	0	0	0	0	0	4	50 721	134,099	2.64	6.75	135,099	135,099
1962	2	260	1,327	5.11	12.62	1,668	1	7 464	24,706	3.31	3.31	24,956	26,624
1963	63	5 055	31,614	6.25	17.30	38,468	1	3 498	1,608	.46	.46	1,858	40,326
1964	40	9 467	109,125	28.47	388.06	120,717	1	5 641	778	.14	.14	1,028	121,745
1965	42	4 347	40,235	9.26	77.60	46,024	15	92 717	52,672	.57	12.11	56,422	102,446
1966	31	4 417	24,086	5.45	64.22	29,850	6	38 689	62,886	1.63	2.08	64,636	94,485
1967	10	2 274	23,537	10.35	22.25	26,446	5	49 846	55,013	1.10	3.80	56,263	82,709
1968	19	3 599	22,630	6.29	18.92	27,265	6	46 040	31,426	.68	4.45	32,926	60,191
1969	2	970	7,164	7.39	11.94	8,382	3	16 453	75,282	4.58	7.54	76,032	84,414
1970	8	3 580	10,094	2.82	8.08	14,596	0	0	0	0	0	0	14,596
1971	2	1 230	33,673	27.38	49.75	34,308	0	0	0	0	0	0	34,308
1972-78	NO SALES												
1979	86	11 064	897,885	81.15	315.17	929,855	3	4 736	40,888	8.63	12.23	47,558	977,413
1980	80	12 540	1,057,530	84.33	470.51	1,092,880	8	15 572	820,345	52.68	100.31	841,810	1,934,690
1981	85	12 312	1,074,958	87.31	257.26	1,109,988	5	5 376	611,199	113.69	178.43	619,169	1,729,157
1982	56	6 448	1,055,668	163.72	938.88	1,074,588	0	0	0	0	0	0	1,074,588
1983	66	9 255	1,032,267	111.54	762.34	1,058,705	1	1 024	40,192	39.25	39.25	41,722	1,100,427
1984	104	8 776	2,181,499	248.58	1,411.17	2,208,639	0	0	0	0	0	0	2,208,639
1985	173	15 471	4,215,083	272.45	1,593.78	4,262,410	0	0	0	0	0	0	4,262,410
1986	103	7 904	891,358	112.77	602.00	916,268	1	768	20,285	26.41	26.41	21,495	937,763
1987	57	5 813	577,253	99.30	230.23	594,635	0	0	0	0	0	0	594,635
1988	29	3 429	348,439	101.62	313.07	358,462	1	2 112	84,231	39.88	39.88	87,121	445,583
1989	31	2 832	231,918	81.89	400.17	240,548	0	0	0	0	0	0	240,548
Total	**1 306**	**177 418**	**14,678,841**	**82.74**	**N/A**	**15,065,268**	**71**	**675 040**	**2,182,287**	**3.23**	**N/A**	**2,237,381**	**17,302,649**

CROWN LEASE SALES, BONUS PAYMENTS, RENTALS AND FEES
1979 - 1989



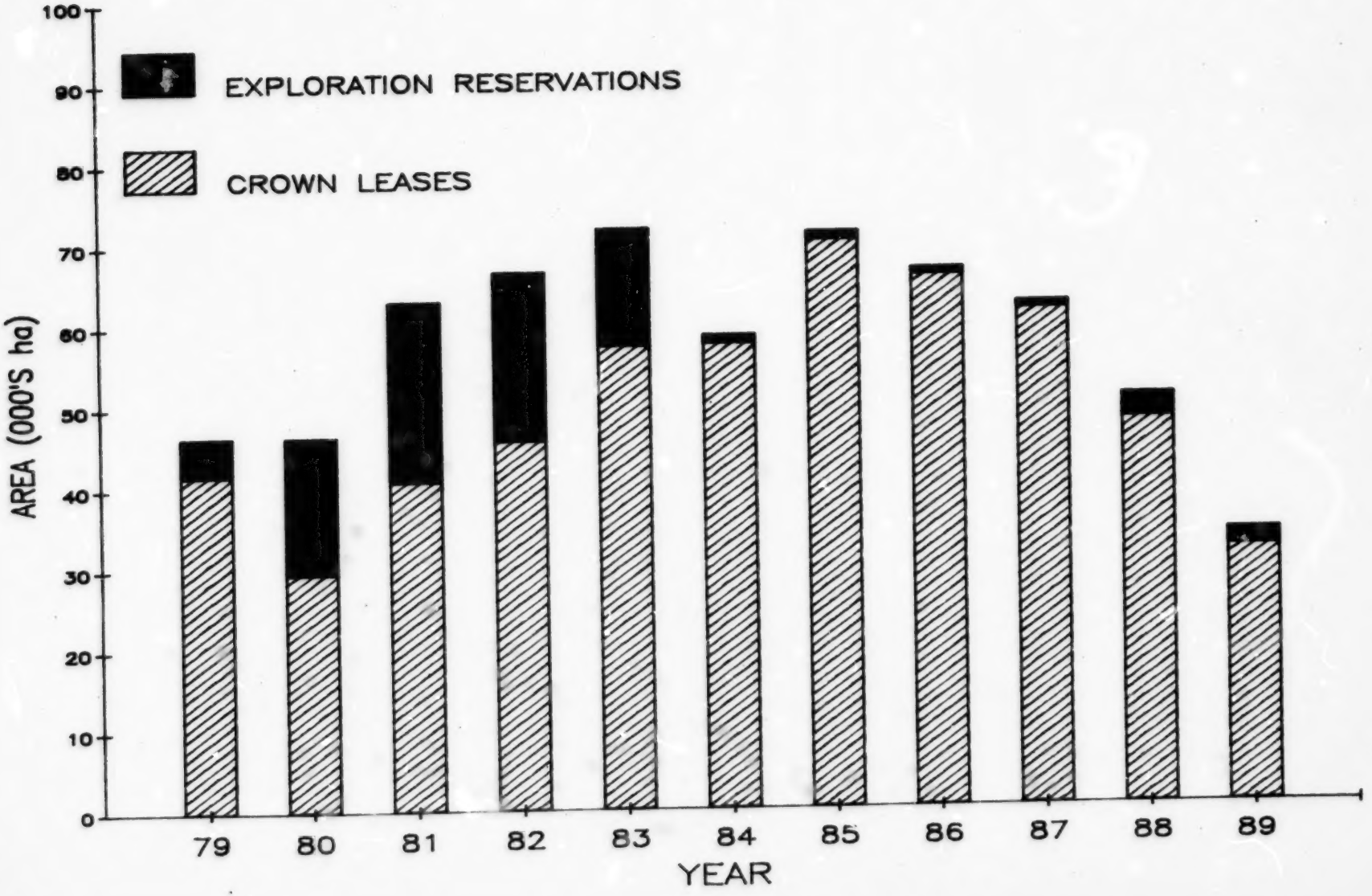
Crown Oil and Natural Gas Leases

As of December 31, 1989, the total area of Crown oil and natural gas rights under disposition was 33 636 hectares. Of this total, 31 524 hectares were held under lease and 2 112 hectares were held under exploration reservations. In 1989 the total area under disposition decreased by 34 percent compared with 1988.

On December 31, 1982, deeper rights renewal provisions came into effect for pre-1979 leases. Under these provisions, non-productive areas and rights below the producing formation revert to the Crown at the end of the lease term. These cancelled rights again become available for leasing by other parties interested in actively developing them.

Oil and natural gas leases have initial terms of five years. Because ten years have passed since lease sales were resumed in 1979, 1989 was the sixth year that post-1978 lease holders had to surrender non-productive leases or apply for one-year extensions by paying additional rental penalties and committing to drilling programs. As a result, those leases surrendered will again be made available to other interested parties.

CROWN OIL & GAS RIGHTS
UNDER DISPOSITION (DEC. 31ST) 1979-1989



Freehold Mineral Owner's Leasing and Revenue

Approximately 80% of the mineral rights in southwestern Manitoba are privately owned (freehold). There is keen competition among companies to negotiate new leases with freehold mineral owners in areas of current interest where leases have expired or where mineral rights are not presently leased. Freehold mineral owners receive revenue from signing bonuses, delay rental payments and oil royalties when production is obtained. Freehold royalties may range from 12 1/2 to 20% of gross production sales value. It is estimated that gross royalties payable to freehold mineral owners in 1989 were $10.0 million (not including signing bonuses and delay rental payments for new and non-producing leases and before payment of provincial and federal taxes).

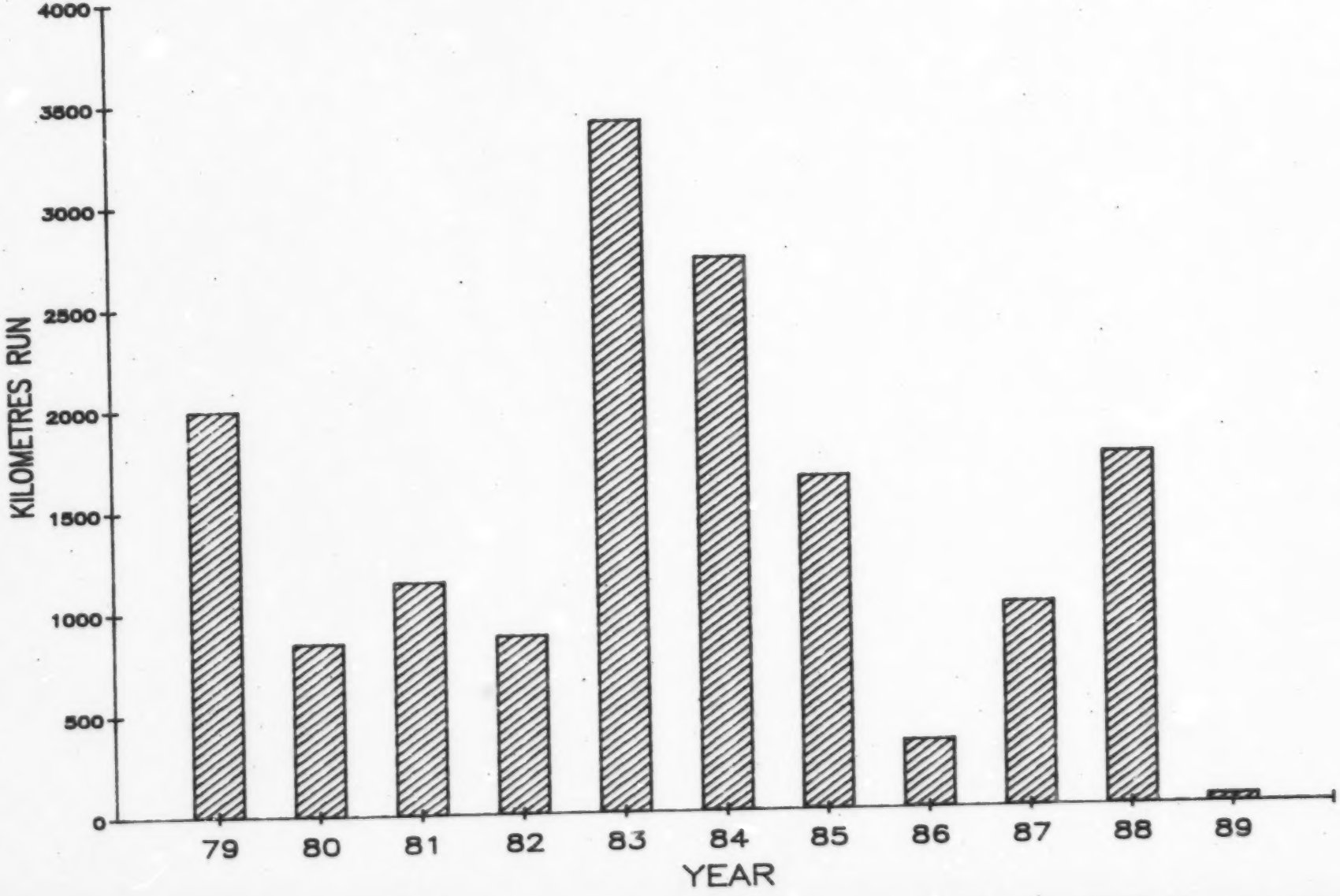
Geophysical Activity

Two geophysical licenses were issued in 1989. The licensed programs covered 40 km. The estimated cost of these programs was $115,000.

This expenditure level is the lowest in Manitoba since 1975.

The two programs were carried out in the Elkhorn and Coulter areas.

GEOPHYSICAL ACTIVITY 1979-1989



MANITOBA GEOPHYSICAL ACTIVITY SUMMARY
1973-1989

YEAR	LICENSES ISSUED	KILOMETRES RUN (km)	TOTAL PROGRAM COSTS $
1973	0	0	0
1974	0	0	0
1975	1	270	106,500
1976	3	112	118,302
1977	2	830	1,046,220
1978	5	1 828	3,451,370
1979	10	2 001	2,970,734
1980	10	851	1,843,438
1981	11	1 148	2,116,854
1982	19	879	1,805,512
1983	14	3 410	3,639,692
1984	23	2 731	5,547,086
1985	25	1 647	3,081,241
1986	8	338	1,227,227
1987	13	683	2,713,000
1988	13	2 148	2,129,550
1989	2	39	114,627

SUMMARY OF 1989 GEOPHYSICAL PROGRAMS

Geophysical License No.	Licensee	Contractor	Km Licensed
299	Future Exploration Ltd.	Future Exploration Ltd.	12.0
300	Format Resources Corporation	Format Resources Corporation	29.5
Total			**41.5**

Drilling Activity

Drilling activity in Manitoba was off again for the third year in a row. In 1989, 54 drilling licenses were issued, resulting in 9 different oil companies drilling 52 wells (28% lower than 1988). Five drilling contractors drilled 42 948 metres of hole. Of the 52 wells drilled in 1989, 45 were classified as development wells, while the remaining 7 were exploratory.

Despite the drop in drilling activity however, the success rate of wells drilled continued to be high. Eighty-five percent (44 wells) of the 52 wells drilled were completed as potential oil wells. Ninety-six per cent of the 45 development wells drilled and fourteen percent of the 7 exploratory wells drilled were completed as potential oil wells.

Areas of New Interest

Waskada

The Waskada Field was the most active area in the province in 1989 with 21 wells being drilled. Significant development in the north-east part of the field continued.

Virden

A 9 well infill program in North Virden Scallion Unit #1, along with 8 wells in the south-west part of the field highlighted development in the Virden area.

Daly

Development of the Bakken play in the north-west part of the Daly Field continued in 1989. To date, a total of seven seperate Bakken pools have been designated in the Daly Field.

South Pierson

Delineation of significant reserves in the Lower Amaranth and Mission Canyon Formations in the South Pierson Field (located in the extreme south-west corner of the Province) slowed during 1989 with only one well drilled.

1989 DRILLING STATISTICS

No of Wells Drilled by Operator

	1989	1988
Chevron Canada Resources Limited	16	7
Enron Oil Canada Ltd.	15	9
Tundra Oil and Gas Ltd.	10	19
Omega Hydrocarbons Ltd.	6	5
Home Oil Company Ltd.	1	7
Morgan Hydrocarbons Ltd.	1	3
Saskatchewan Oil and Gas Corp.	1	1
Petro Canada Inc.	1	--
Magnum Petroleum Corp.	1	--
Total	**52**	**--**

No of Wells Drilled by Contractor

	1989	1988
Crown Drilling Ltd.	22	29
Simmons Gorup Inc.	11	13
Can Am Drilling Ltd.	10	20
Sedco Drilling Ltd.	8	3
J. Horn Drilling Ltd.	1	--
Total	**52**	**--**

1989 DRILLING ACTIVITY BY AREA

Area	TWP	RGE WPM	# Of Wells Drld.	Development Drld.	Development POW	Exploration Drld.	Exploration POW	Total POW	Dry/ Abd	Other
Daly	8-10	27-29	7	6	5	1	--	5	2	--
Tilston	5/6	29	1	1	1	--	--	1	--	--
Waskada	1/2	25/26	21	20	19	1	--	19	2	--
Lulu Lake	1	21	--	--	--	--	--	--	--	--
Virden	9-12	25-27	17	16	16	1	1	17	--	--
Whitewater	2/3	21	--	--	--	--	--	--	--	--
Pierson	3	28/29	--	--	--	--	--	--	--	--
Kirkella	12	29	--	--	--	--	--	--	--	--
Souris Hartney	6	22	--	--	--	--	--	--	--	--
Coulter	1	27	--	--	--	--	--	--	--	--
S. Pierson	2	28/29	1	1	1	--	--	1	--	--
Regent	4	21/22	1	1	1	--	--	1	--	--
Other Areas			4	--	--	4	--	--	4	--
Total			**52**	**45**	**43**	**7**	**1**	**44**	**8**	**--**
% of Total Drilled			--		87		13	85	15	--
Success Rate			--		96		14	--	--	--

POW = Potential Oil Wells

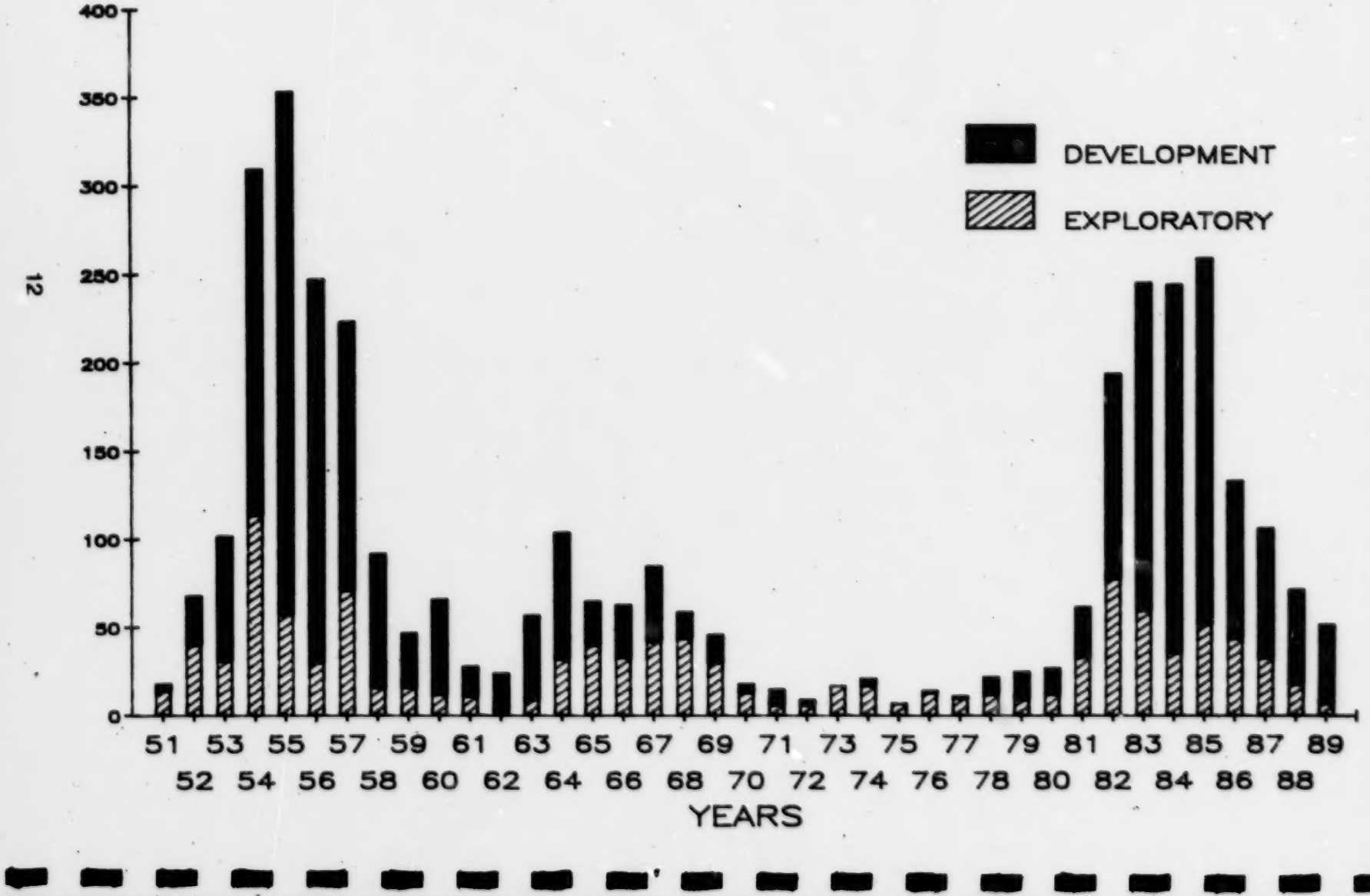
1989 EXPLORATORY WELL CASED FOR PRODUCTION

Location	Operator	Classification
Virden Area 8-18-9-25 WPM	Chevron Canada Resources Limited	Outpost

DRILLING ACTIVITY 1951-1989

YEAR	WELLS LICENSED	WELLS DRILLED	OIL AND GAS WELLS						OTHER WELLS DRILLED*			
			WELL CLASSIFICATION		COMPLETED STATUS							
			E	D	POTENTIAL OIL	ABANDONED DRY	SERVICE	METRES DRILLED	STH	PTH	GSW	Helium
1951	20	18	14	4	6	10	2	14 956	103	0	0	0
1952	74	68	40	28	25	33	10	58 344	33	0	0	0
1953	119	102	31	71	73	29	0	76 682	9	0	0	0
1954	340	310	114	196	217	90	3	233 170	0	0	0	0
1955	378	354	57	297	279	66	9	254 774	5	0	0	0
1956	269	248	30	218	202	38	8	176 994	14	0	0	0
1957	225	224	71	153	139	85	0	155 469	2	0	0	0
1958	92	92	16	76	61	31	0	60 430	0	0	0	0
1959	48	47	16	31	30	17	0	30 792	0	2	0	0
1960	65	66	12	54	50	15	1	43 918	0	0	0	0
1961	25	28	11	17	11	16	1	17 389	0	1	0	0
1962	28	24	3	21	15	9	0	17 683	0	0	0	2
1963	59	57	9	48	39	16	2	43 451	0	0	0	0
1964	107	104	32	72	68	35	1	75 303	0	3	0	0
1965	69	65	40	25	27	38	0	50 298	2	8	0	0
1966	68	63	33	30	29	33	1	54 863	5	4	0	0
1967	90	85	42	43	44	41	0	67 068	0	0	0	0
1968	61	59	44	15	27	32	0	48 840	2	0	1	0
1969	55	46	30	16	14	29	3	34 376	38	0	0	0
1970	17	18	13	5	2	16	0	16 253	1	0	0	0
1971	18	15	6	9	2	8	5	13 026	6	0	0	0
1972	10	9	6	3	0	7	2	6 778	1	0	0	0
1973	19	17	17	0	0	17	0	14 083	0	0	0	0
1974	21	21	17	4	6	14	1	22 710	1	0	0	0
1975	5	7	7	0	2	4	1	6 717	4	0	0	0
1976	14	14	13	1	3	11	1	11 161	0	0	2	0
1977	19	11	10	1	9	2	0	9 359	0	0	2	0
1978	16	22	12	10	10	6	6	18 329	0	0	0	0
1979	27	25	9	16	16	9	0	20 537	0	0	0	0
1980	27	27	12	15	18	9	0	23 508	0	6	0	0
1981	71	62	33	29	47	15	0	61 011	0	5	0	0
1982	201	195	78	117	164	30	1	184 282	0	0	0	0
1983	284	247	60	187	223	24	0	229 304	0	5	0	0
1984	249	246	36	210	218	28	0	220 631	0	0	0	0
1985	306	261	52	209	229	29	3	228 387	7	0	0	0
1986	116	134	44	90	122	11	1	118 675	0	1	0	0
1987	116	107	33	74	90	17	0	96 970	0	0	0	0
1988	78	72	18	54	48	23	1	63 722	0	0	0	0
1989	54	52	7	45	44	8	0	42 948	0	0	0	0
TOTAL	3 860	3 622	1 128	2 494	2 609	951	63	2 923 191	233	35	5	2

WELLS DRILLED IN MANITOBA
1951-1989



Summary of 1989 Drilling Activity

	Total 1989	January	February	March	April	May	June	July	August	September	October	November	December
Well Licenses Issued	54	--	4	2	--	2	9	11	2	4	14	5	1
Rigs Operated	--	1	1	2	--	1	2	2	4	3	3	3	1
Wells Drilled (Total):	52	1	2	3	--	1	4	6	9	6	7	10	3
Development	45	--	2	3	--	1	3	5	8	5	6	9	3
Exploratory Outpost	2	1	--	--	--	--	--	--	1	--	--	--	--
Exploratory NFW*	4	--	--	--	--	--	1	1	--	1	1	--	--
Exploratory DPW*	1	--	--	--	--	--	--	--	--	--	--	1	--
Exploratory NPW*	--	--	--	--	--	--	--	--	--	--	--	--	--
Metres Drilled (Total):	42 948	724	1 755	2 450	--	935	3 186	6 464	6 693	3 899	5 202	8 859	2 781
Development	36 687	--	1 755	2 450	--	935	2 586	4 614	5 753	3 358	4 452	8 003	2 781
Exploratory Outpost	1 664	724	--	--	--	--	--	--	940	--	--	--	--
Exploratory NFW	3 741	--	--	--	--	--	600	1 850	--	541	750	--	--
Exploratory DPW	856	--	--	--	--	--	--	--	--	--	--	856	--
Exploratory NPW	--	--	--	--	--	--	--	--	--	--	--	--	--
New Potential Oil Wells	44	1	2	3	--	1	3	5	8	4	6	9	2
Abandoned Dry	8	--	--	--	--	--	1	1	1	2	1	1	1
Other	--	--	--	--	--	--	--	--	--	--	--	--	--

*NFW New Field Wildcat

DPW Deeper Pool Wildcat

NPW New Pool Wildcat

EXPLORATORY* WELLS DRILLED IN MANITOBA BY FORMATION 1974 - 1989

Year	(Geological Period of Formation Drilled Into)								
	Cretaceous	Jurassic	Mississippian	Devonian	Silurian	Ordovician	Cambrian	Precambrian	Total
1974	1	--	5	--	--	--	--	12	18
1975	1	--	4	1	--	4	--	1	11
1976	-	--	5	7	--	--	--	--	12
1977	-	--	10	-	--	--	--	--	10
1978	-	--	9	1	--	1	--	1	12
1979	-	--	6	1	--	--	--	2	9
1980	-	--	8	1	1	--	--	1	11
1981	-	--	21	6	--	--	--	5	32
1982	-	--	72	5	--	--	--	1	78
1983	-	1	48	9	1	--	--	1	60
1984	1	--	32	2	--	--	--	1	36
1985	-	--	49	2	--	--	--	1	52
1986	-	--	30	13	--	--	--	--	43
1987	-	--	13	19	1	--	--	--	33
1988	3	--	9	6	--	--	--	--	18
1989	--	1	2	3	1	--	--	--	7
Total	**6**	**2**	**323**	**76**	**4**	**5**	**-**	**26**	**442**

* Exploratory - includes outpost, new field wildcat, new pool wildcat and deeper pool wildcat classifications.

DETAILED DRILLING STATISTICS 1981-1989

	Exploratory								
	New Field Wildcat		Outpost		Deeper Pool Test		New Pool Wildcat		Sub
Year	Drld	Success(%)	Drld	Success(%)	Drld	Success(%)	Drld	Success(%)	Total
1981	23	35%	6	100%	4	100%	--	--	33
1982	43	44%	35	94%	0	--	--	--	78
1983	29	59%	27	93%	4	100%	--	--	60
1984	19	37%	16	50%	1	100%	--	--	36
1985	29	60%	22	82%	1	100%	--	--	52
1986	21	86%	16	94%	6	100%	--	--	43
1987	12	25%	7	57%	12	92%	2	100%	33
1988	10	0%	6	33%	2	50%	--	--	18
1989	4	0%	2	50%	1	0%	--	--	7

	Development		Other		
	Drld	Success(%)	Service	STH/PTH	Total
1981	29	100%	0	5	67
1982	117	95%	0	0	195
1983	187	95%	0	5	252
1984	210	95%	0	0	246
1985	209	92%	3	7	268
1986	90	95%	1	1	135
1987	74	93%	0	0	107
1988	53	85%	1	--	72
1989	45	96%	--	--	52

NON-ABANDONED WELLS (Dec. 1989)

Field	Active Oil Producers*	Inactive Oil Producers*	Active WSW	Inactive WSW	Active GIW	Active SWD**	Inactive SWD**	Active WIW	Inactive WIW	(Dec.31/89) Total Non-Abandoned Wells***
Daly	351	53	--	1	--	13	3	32	4	457
Tilston	16	4	--	--	--	2	1	--	--	23
Waskada	294	85	1	1	1	3	2	69	21	477
Lulu Lake	7	--	--	--	--	1	--	--	--	8
Virden	525	48	--	--	--	18	7	125	--	723
Whitewater	25	2	--	--	--	1	--	--	--	28
Pierson	47	6	--	--	--	5	--	--	--	58
Kirkella	22	13	--	--	--	4	1	--	--	40
Souris-Hartney	6	2	--	--	--	1	--	--	--	9
Coulter	4	5	--	--	--	--	--	--	--	9
South Pierson	27	6	--	--	--	2	--	--	--	35
Regent Field	10	2	--	--	--	1	--	--	--	13
Other Areas	12	2	--	--	--	2	--	--	--	16
Confidential	7	--	--	--	--	--	--	--	--	7
Total	**1 353**	**228**	**1**	**2**	**1**	**53**	**14**	**226**	**25**	**1 903**

1989 Designated Field Boundaries

Active Wells (Dec. 1989) = 1 353

* Dual wells not included.

** Dual wells included.

*** Excludes abandonments during December

Production and Markets

Annual oil production in Manitoba was 722 820 m^3 (4.5 million barrels) in 1989, representing a 6.0% decrease from 1988. During December 1989 the Province had 1 353 oil wells producing.

Oil production from the Virden, Waskada and Daly Fields during 1989 accounted for 40%, 25% and 20% respectively of Manitoba's total production. The South Pierson Field experienced the largest increase in oil production, 5 819 m^3 or a 22% increase. The only other field to have an increase in production was the Kirkella Field with a 398 m^3 or 4% increase.

Of the total amount of oil purchased by refiners in 1989, approximately 49% was refined in Ontario, 20% was utilized by refiners in Quebec and 31% went to refineries in the United States.

1989 ANNUAL PRODUCTION

By Operator	Vol (m^3)
Chevron Canada Resources	313 819.9
Omega Hydrocarbons Ltd.	122 650.5
Tundra Oil and Gas Ltd.	45 809.1
Enron Oil Canada Ltd.	44 299.1
Home Oil Company Limited	24 877.9
Canada Northwest Energy Limited	20 913.1
Newscope Resources Limited	18 507.4
Rideau Petroleums Ltd.	18 265.4
International Interlake Industries Inc.	17 472.0
Canadian Roxy Petroleum Ltd.	17 243.2
Assiniboine Developments Ltd.	8 202.3
Samedan Oil of Canada, Inc.	7 770.8
Mead Petroleums & Farns Ltd.	6 526.2
Lyleton Corporation	6 428.1
ICG Resources Ltd.	5 080.5
Esso Resources Canada	3 981.4
Saskatchewan Oil and Gas Corporation	3 771.8
Murphy Oil Company Ltd.	3 743.8
Ranchmen's Resources Ltd.	3 735.8
Can-Tex Drilling & Exploration Ltd.	3 323.0
Upton Resouces Inc.	2 073.2
Trilogy Resource Corporation	1 975.4
Triton Petroleum Limited	1 694.8
Koch Exploration Canada Ltd.	1 620.4
Dome Petroleum Limited	1 559.9
Gerrand Enterprises Ltd.	1 357.2
Niagara Capital Corproration	1 062.2
Southern Resources Ltd.	1 036.9
Other	14 019.0
Total	**722 820.3**

By Field	Vol (m^3)
Virden	291 766.9
Waskada	183 877.0
Daly	143 764.4
South Pierson	31 861.3
Pierson	20 362.0
Whitewater	13 394.4
Kirkella	9 822.7
Regent	5 187.9
Tilston	4 673.9
Lulu Lake	2 966.9
Souris Hartney	2 090.0
Coulter	555.1
Other Areas	7 254.1
Confidential	5 243.7
Total	**722 820.3**

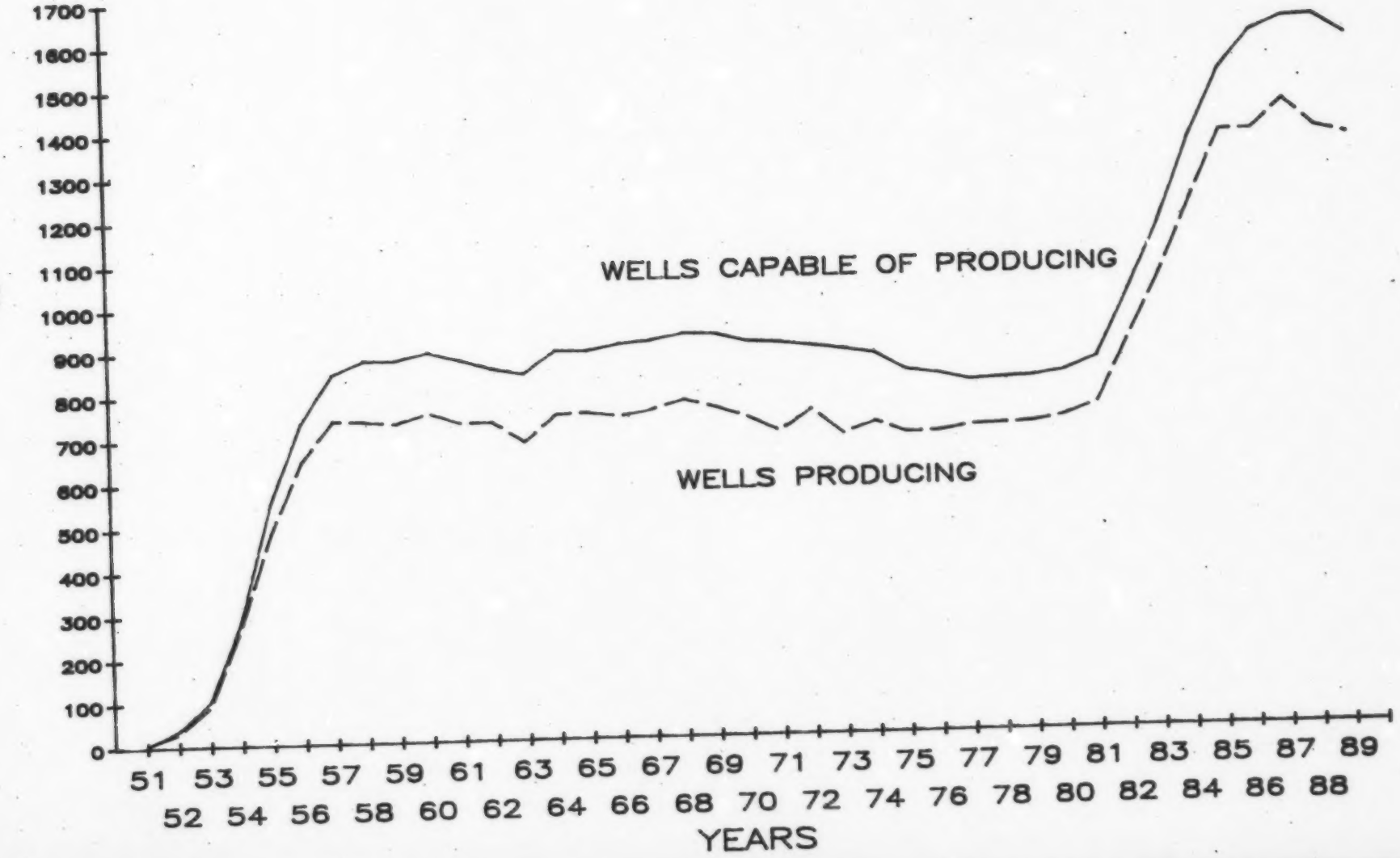
1989 MONTHLY CRUDE OIL PRODUCTION BY FIELD (m^3)

Field	January	February	March	April	May	June	July	August	September	October	November	December	Total
Daly	12 286.9	10 773.4	12 306.6	11 596.3	12 058.4	12 040.9	12 425.6	12 539.8	11 769.8	12 298.0	11 595.5	12 073.2	143 764.4
Tilston	456.1	401.6	436.8	389.9	403.7	365.8	389.5	385.0	367.9	353.4	330.4	393.8	4 673.9
Waskada	15 912.9	14 055.2	16 044.3	14 807.4	15 605.6	14 315.7	15 142.5	16 104.3	14 949.5	14 887.5	15 738.1	16 314.0	183 877.0
Lulu Lake	293.8	216.4	259.1	261.1	270.2	178.2	248.5	257.4	237.9	260.3	239.7	244.3	2 966.9
Virden	25 142.0	22 847.2	25 081.1	23 543.3	24 648.5	23 838.4	24 195.3	24 335.2	24 037.8	25 332.0	24 265.7	24 500.4	291 766.9
Whitewater	1 187.9	1 042.5	1 178.2	1 004.4	1 165.1	1 222.6	1 191.0	995.6	1 097.6	1 214.0	1 082.2	1 013.3	13 394.4
Pierson	1 865.2	1 560.8	1 707.3	1 578.4	1 640.7	1 680.5	1 736.2	1 531.6	1 800.3	1 786.5	1 720.2	1 754.3	20 362.0
Kirkella	762.0	657.1	769.1	888.1	971.0	915.1	864.7	842.9	827.0	832.1	765.7	727.9	9 822.7
Souris Hartney	141.7	137.4	167.3	146.9	143.3	207.8	201.4	200.3	188.1	172.2	197.8	185.8	2 090.0
Coulter	19.5	13.3	55.1	39.7	40.3	60.2	58.4	49.9	40.6	80.5	43.4	54.2	555.1
South Pierson	2 749.3	2 491.0	2 902.8	2 722.5	2 756.0	2 698.9	2 450.7	2 693.1	2 423.5	2 591.4	2 663.7	2 718.4	31 861.3
Regent	516.2	392.8	465.2	507.3	408.5	451.4	415.1	395.0	481.5	446.2	382.9	325.8	5 187.9
Other Areas	723.5	590.1	586.9	432.2	546.4	481.5	633.3	772.5	573.8	595.3	673.1	645.5	7 254.1
Conf. Wells	--	--	97.6	--	261.0	218.6	295.9	372.1	523.2	645.1	1 259.4	1 570.8	5 243.7
Total	**62 057.0**	**55 178.8**	**62 057.4**	**57 917.5**	**60 918.7**	**58 675.6**	**60 248.1**	**61 474.7**	**59 318.5**	**61 494.5**	**60 957.8**	**62 521.7**	**722 820.3**

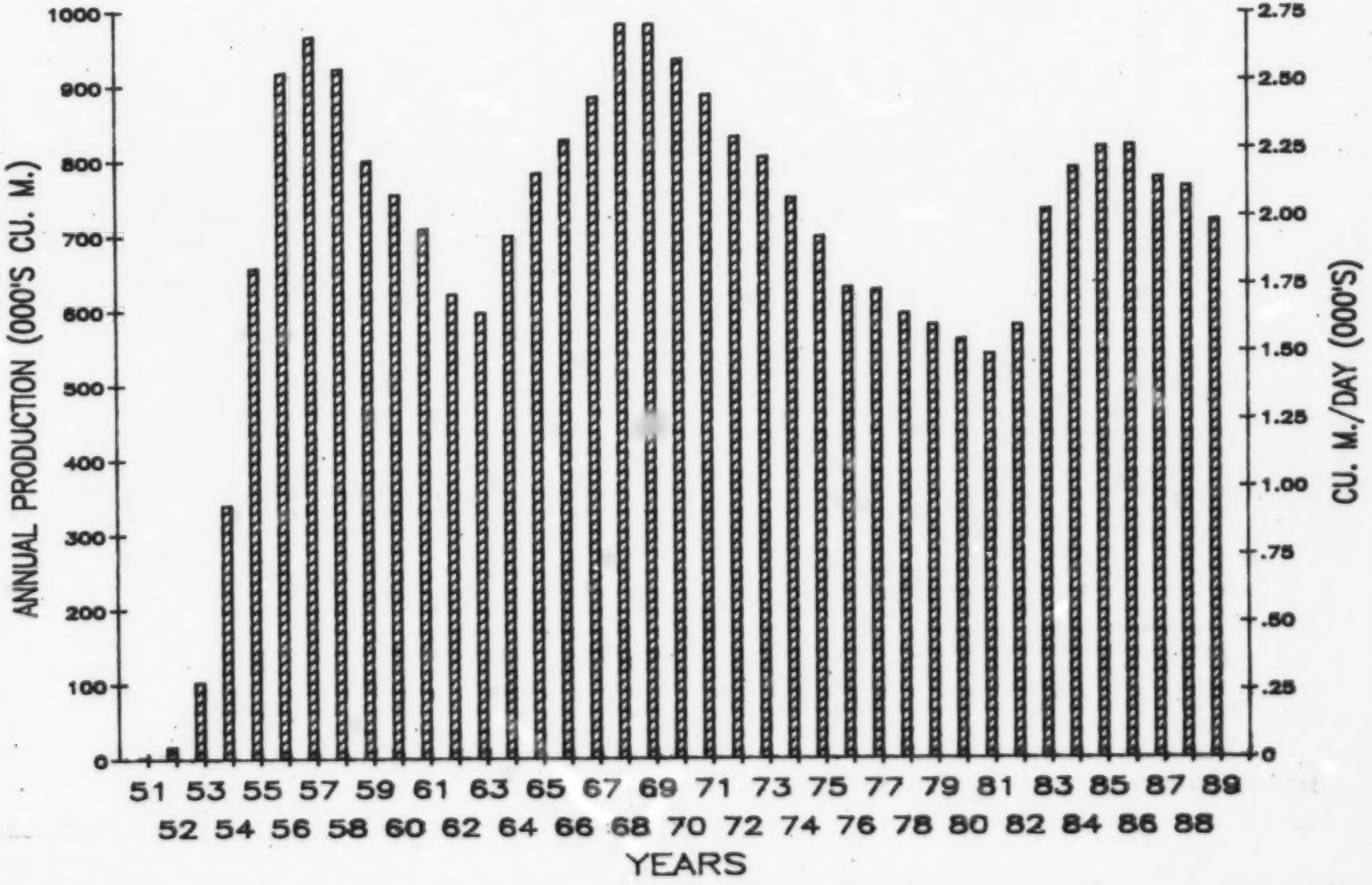
MANITOBA OIL AND WATER PRODUCTION
1951-1989

YEAR	WELLS CAPABLE OF PRODUCING (DECEMBER)	WELLS PRODUCING (DECEMBER)	OIL PRODUCTION (m^3)	WATER PRODUCTION (m^3)	TOTAL FLUID PRODUCTION (m^3)	AVG. WATER CUT (%)	AVG. OIL PRODUCTION (m^3/day)
1951	5	5	1 854	152	2 006	7.6	5.1
1952	39	32	17 022	4 068	21 090	19.3	46.6
1953	105	93	104 193	50 614	154 807	32.7	285.5
1954	284	269	341 410	112 226	453 636	24.7	935.4
1955	554	486	658 802	160 092	818 894	19.5	1 804.9
1956	736	647	919 539	754 908	1 674 447	45.1	2 519.3
1957	846	739	967 721	1 709 792	2 677 513	63.9	2 651.3
1958	877	736	926 322	1 183 122	2 109 444	56.1	2 537.9
1959	875	730	803 461	1 273 632	2 077 093	61.3	2 201.3
1960	893	755	757 054	1 400 880	2 157 934	64.9	2 074.1
1961	874	729	711 969	1 510 627	2 222 596	68.0	1 950.6
1962	852	730	623 989	1 549 430	2 173 419	71.3	1 709.6
1963	839	683	599 212	1 550 287	2 149 499	72.1	1 641.7
1964	892	745	701 920	1 752 708	2 454 628	71.4	1 923.1
1965	889	748	786 050	2 004 068	2 790 118	71.8	2 153.6
1966	905	737	831 248	2 162 719	2 993 967	72.2	2 277.4
1967	911	752	887 572	2 288 271	3 175 843	72.1	2 431.7
1968	926	774	986 024	2 839 697	3 825 721	74.2	2 701.4
1969	923	754	985 981	3 091 398	4 077 379	75.8	2 701.3
1970	904	730	939 175	3 105 414	4 044 589	76.8	2 573.1
1971	900	695	890 622	3 463 885	4 354 507	79.5	2 440.1
1972	891	745	835 380	3 744 738	4 580 118	81.8	2 288.7
1973	882	687	807 882	3 983 740	4 791 622	83.1	2 213.4
1974	871	714	754 667	3 992 698	4 747 365	84.1	2 067.6
1975	831	686	701 459	3 975 389	4 676 848	85.0	1 921.8
1976	821	688	633 322	4 020 078	4 653 400	86.4	1 735.1
1977	804	701	630 466	4 226 135	4 856 601	87.0	1 727.3
1978	808	703	598 354	4 073 299	4 671 653	87.2	1 639.3
1979	811	706	583 377	3 946 337	4 529 714	87.1	1 598.3
1980	823	720	563 482	4 171 099	4 734 581	88.1	1 543.8
1981	853	748	542 695	4 565 210	5 107 905	89.4	1 486.8
1982	1 002	896	582 283	4 582 081	5 164 364	88.7	1 595.1
1983	1 160	1 041	736 934	5 079 646	5 816 580	87.3	2 019.0
1984	1 350	1 209	793 286	5 575 632	6 368 918	87.5	2 173.4
1985	1 505	1 366	820 729	5 685 409	6 506 138	87.4	2 248.6
1986	1 592	1 367	823 322	6 506 138	7 329 460	88.8	2 255.7
1987	1 624	1 434	781 806	6 317 251	7 099 057	89.0	2 141.9
1988	1 627	1 370	768 494	6 424 965	7 193 459	89.3	2 105.5
1989	1 581	1 353	722 820	6 368 365	7 091 185	89.8	1 980.3
TOTAL	--	--	**27 121 898**	**119 206 200**	**146 328 098**	--	--

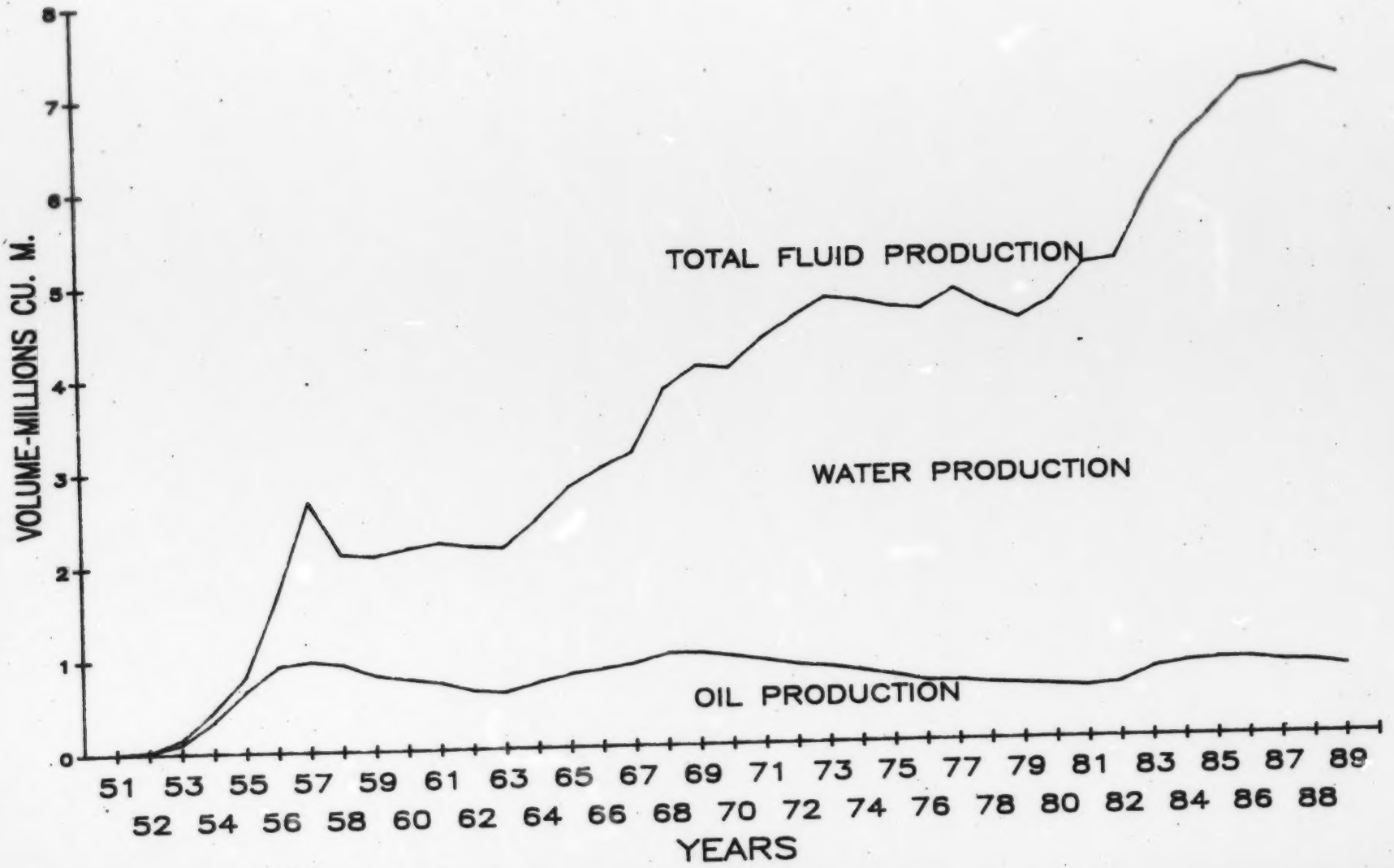
OIL PRODUCING WELLS IN MANITOBA
1951 - 1989



MANITOBA CRUDE OIL PRODUCTION
1951-1989



MANITOBA OIL AND WATER PRODUCTION
1951-1989



COMPARISON OF 1989 vs 1988 OIL PRODUCTION BY FIELD

Field	1989 m^3	1989 % of Total	1988 m^3	1988 % of Total	Change 1989/1988 increase/(decrease) m^3	Change 1989/1988 increase/(decrease) % Change
Daly	143 764.4	19.9	156 706.9	20.4	(12 942.5)	(8.3)
Tilston	4 673.9	0.6	5 634.5	0.7	(960.6)	(17.0)
Waskada	183 877.0	25.4	203 413.5	26.5	(19 536.5)	(9.6)
Lulu Lake	2 966.9	0.4	3 417.3	0.4	(450.4)	(13.2)
Virden	291 766.9	40.4	309 082.2	40.2	(17 315.3)	(5.6)
Whitewater	13 394.4	1.9	16 852.2	2.2	(3 457.8)	(20.5)
Pierson	20 362.0	2.8	23 244.7	3.0	(2 882.7)	(12.4)
Kirkella	9 822.7	1.4	9 424.6	1.2	398.1	4.2
Souris Hartney	2 090.0	0.3	2 270.6	0.3	(180.6)	(8.0)
Coulter	555.1	0.1	737.9	0.1	(182.8)	(24.8)
South Pierson	31 861.3	4.4	26 041.9	3.4	5 819.4	22.3
Regent	5 187.9	0.7	6 199.5	0.9	(1 011.6)	(16.3)
Other Areas	7 254.1	1.0	5 400.9	0.7	1 853.2	34.3
Confidential Wells	5 243.7	0.7	67.5	0.0	5 176.2	7 668.4
Total	**722 820.3**	**100.0**	**768 494.2**	**100.0**	**(45 673.9)**	**(5.9)**

DISPOSITION OF MANITOBA PRODUCED CRUDE OIL 1951-1989 (m^3)*

YEAR	MANITOBA**	ONTARIO	QUEBEC	USA	TOTAL
1951-1959		DATA NOT AVAILABLE			
1960	371 732	321 440	-	79 611	772 783
1961	148 029	573 637	-	-	721 666
1962	74 471	558 567	-	6 420	639 458
1963	94 452	533 598	-	-	628 050
1964	164 326	539 152	-	-	703 478
1965	82 651	701 955	-	-	784 606
1966	22 572	564 797	-	263 011	850 380
1967	27 417	416 097	-	476 577	920 091
1968	30 180	455 207	-	524 570	1 009 957
1969	31 323	620 216	-	351 918	1 003 457
1970	30 011	408 452	-	515 769	954 232
1971	24 539	388 389	-	490 412	903 340
1972	24 270	378 571	-	465 552	868 393
1973	273 687	95 745	-	455 093	824 525
1974	449 887	60 934	-	252 605	763 426
1975	383 383	312 397	-	12 596	708 376
1976	82 747	535 162	-	34 356	652 265
1977	21 877	609 298	-	41 309	672 484
1978	53 162	552 889	-	40 450	646 501
1979	33 258	549 524	-	48 261	631 043
1980	92 921	444 319	19 026	55 378	611 644
1981	180 402	189 659	150 177	57 702	577 940
1982	-	331 564	371 331	57 465	760 360
1983	81 887	258 611	380 911	71 544	792 953
1984	-	550 489	198 168	90 874	839 531
1985	-	245 364	483 508	211 331	940 203
1986	-	300 446	175 962	499 997	976 405
1987	-	349 807	113 418	464 806	928 031
1988	-	276 170	187 639	470 401	934 210
1989		428 731	178 744	272 305	879 779
Total	**2 779 184**	**12 551 187**	**2 258 884**	**6 310 313**	**23 899 567**

* Includes some oil produced in Saskatchewan and transported into Manitoba.
** Manitoba's last refinery (Shell St. Boniface) closed in 1983.

Oil Prices

Oil prices in 1989 recovered from the lower levels experienced in 1988. Prices climbed during January, February and March then stabilized for the remainder of the year. The lowest posted price was at the beginning of January, the highest at the end of December. The average monthly price was lowest in February at $114.00/m^3 ($18.10 Cdn. per barrel) and highest in April at $139.00/m^3 ($22.10 Cdn. per barrel).

In 1989, Manitoba's overall average crude oil selling price increased 22% to $124.66 ($19.81 Cdn. per barrel).

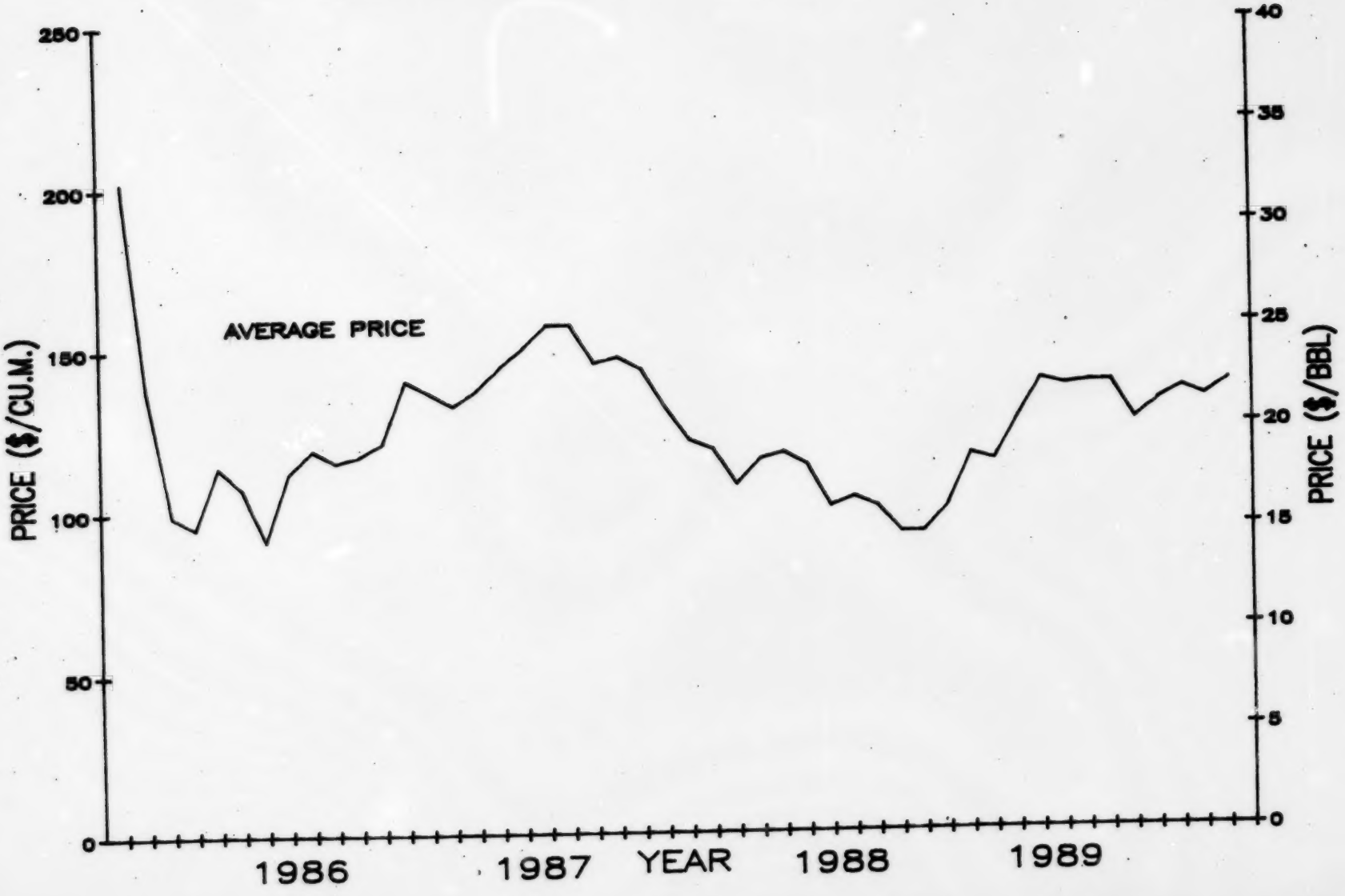
Value of Production

The total value of oil production during 1989 was $90.1 million, up 15% from 1988. Declining production but higher crude oil prices in 1989 contributed to the increase in the value of production compared to 1988.

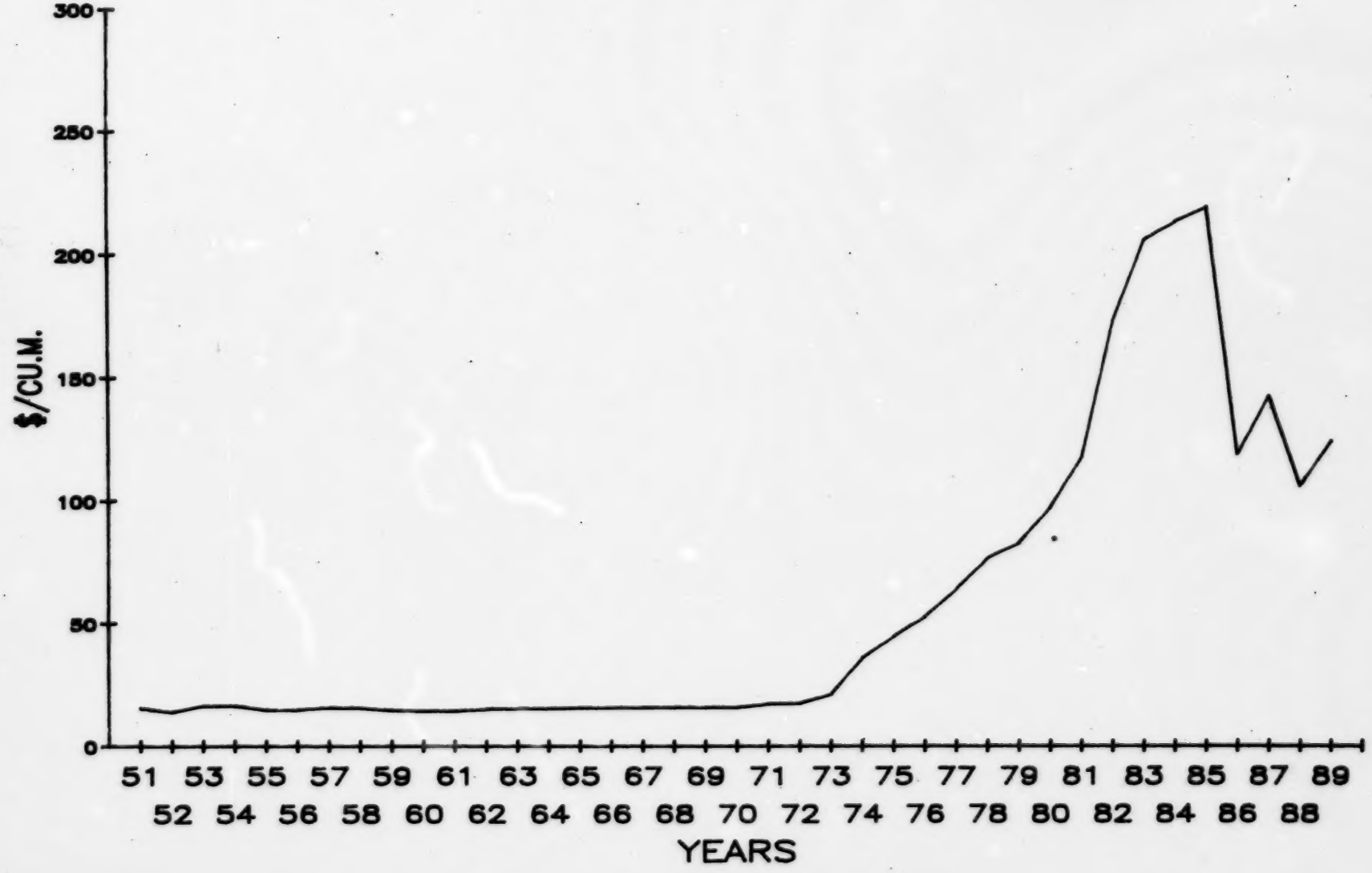
Provincial Revenue from Oil Production

Higher crude oil prices combined with a decline in production resulted in a increase in direct government revenues in 1989. During 1989, the Manitoba government collected approximately $9.4 million in revenues ($2.3 million in Crown oil royalties, $6.8 million in freehold oil taxes, and $0.4 million in Crown lease sale bonuses, rentals and fees), resulting in a 11% increase from 1988. These figures do not include provincial revenues in the form of corporate capital tax, sales tax, municipal tax and corporate and individual income tax.

MANITOBA MONTHLY CRUDE OIL PRICES 1986 -1989



MANITOBA AVERAGE CRUDE OIL PRICE
1951 - 1989



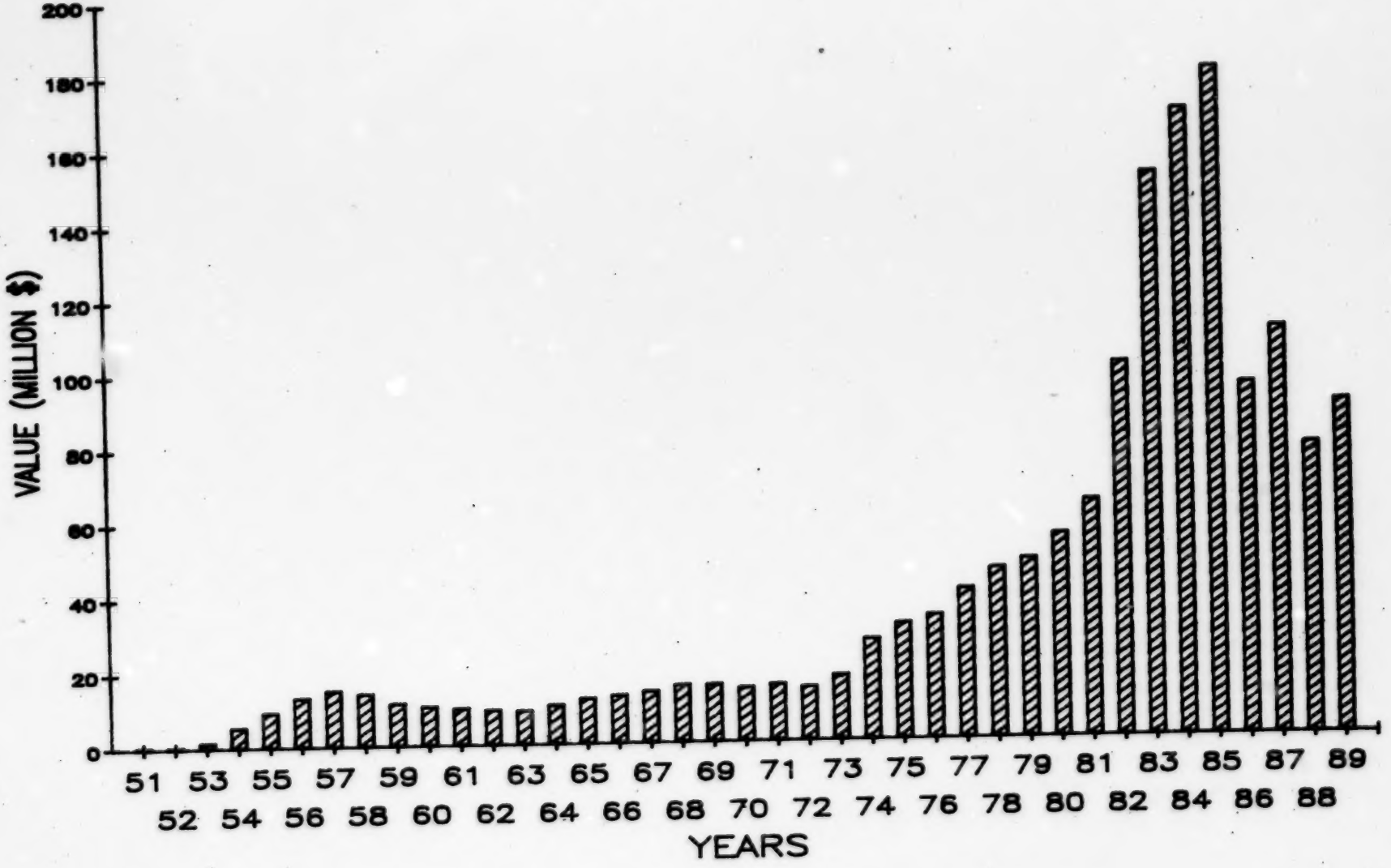
MANITOBA CRUDE OIL PRODUCTION AND SALES VALUE

1951-1989

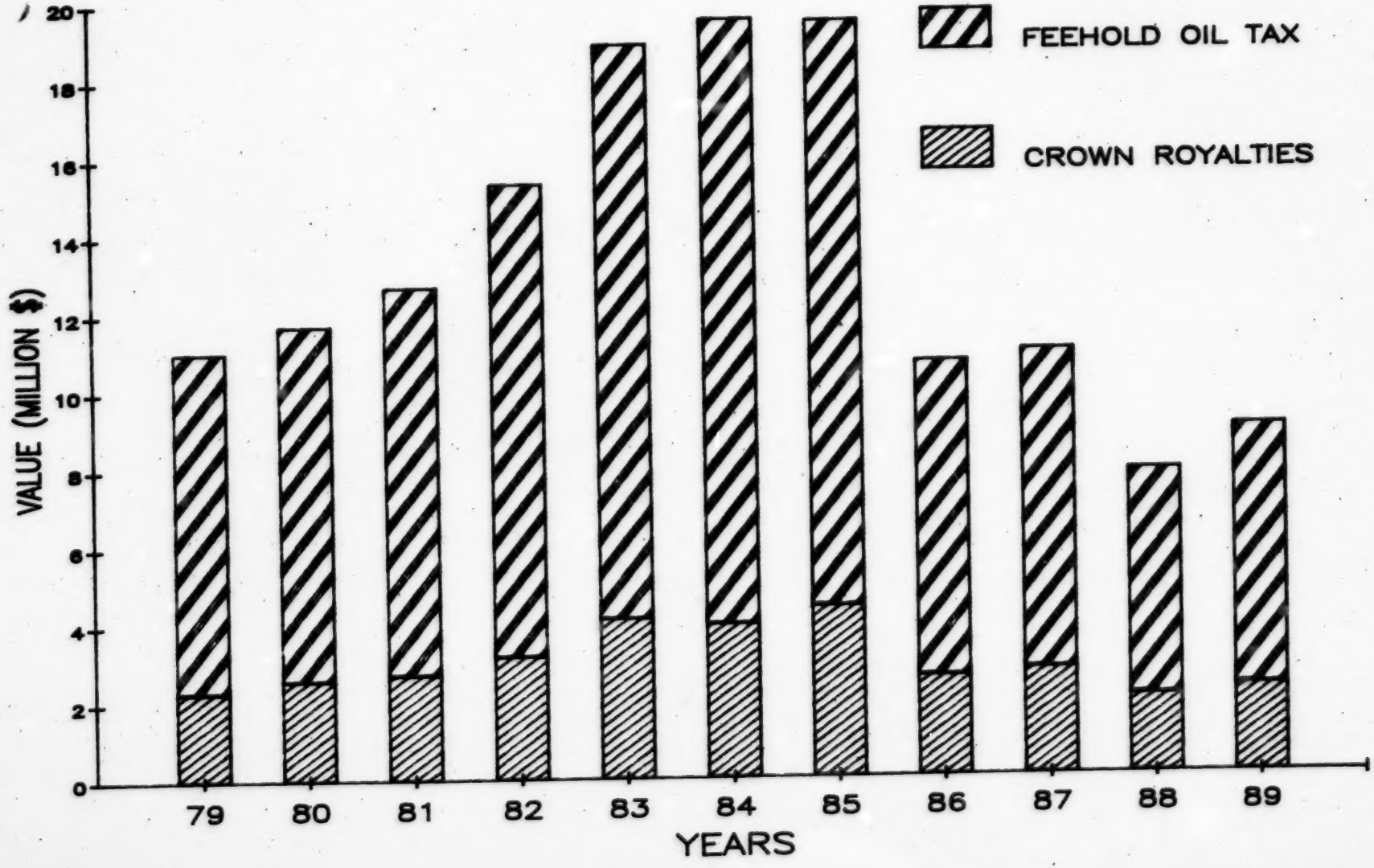
YEAR	ANNUAL PRODUCTION (m^3)	CUMULATIVE PRODUCTION (m^3)	VALUE OF SALES (000's $)	CUMULATIVE VALUE OF SALES (DEC. 31) (000's $)	AVERAGE * WELLHEAD PRICE $/$m^3$	$/bbl
1951	1 854	1 854	26	26	15.58	2.48
1952	17 022	18 876	229	255	13.77	2.24
1953	104 193	123 069	1,715	1,970	16.51	2.62
1954	341 410	464 479	5,620	7,590	16.46	2.62
1955	658 802	1 123 281	9,517	17,107	14.56	2.31
1956	919 539	2 042 820	13,417	30,524	14.61	2.32
1957	967 721	3 010 541	15,231	45,755	15.81	2.51
1958	926 322	3 936 863	14,265	60,020	15.40	2.45
1959	803 461	4 740 324	11,615	71,635	14.46	2.30
1960	757 054	5 497 378	10,690	82,325	14.16	2.25
1961	711 969	6 209 347	10,133	92,458	14.27	2.27
1962	623 989	6 833 336	9,500	101,958	15.12	2.49
1963	599 212	7 432 548	9,183	111,141	15.33	2.44
1964	701 920	8 134 468	10,694	121,835	15.31	2.43
1965	786 050	8 920 518	12,270	134,105	15.59	2.48
1966	831 248	9 751 766	13,087	147,192	15.73	2.50
1967	887 572	10 639 338	13,974	161,166	15.77	2.51
1968	986 024	11 625 362	15,561	176,727	15.79	2.51
1969	985 981	12 611 343	15,615	192,342	15.82	2.51
1970	939 175	13 550 518	14,858	207,200	15.80	2.51
1971	890 622	14 441 140	15,445	222,645	17.31	2.75
1972	835 380	15 276 520	14,586	237,231	17.46	2.77
1973	807 882	16 084 402	17,155	254,386	21.23	3.37
1974	754 667	16 839 069	27,182	281,568	36.00	5.72
1975	701 459	17 540 528	31,453	313,021	44.81	7.12
1976	633 322	18 173 850	33,533	346,554	52.99	8.42
1977	630 466	18 804 316	40,457	387,011	64.12	10.19
1978	598 354	19 402 670	45,953	432,964	76.77	12.20
1979	583 377	19 986 047	48,403	481,367	82.97	13.19
1980	563 482	20 549 529	54,958	536,325	97.57	15.51
1981	542 695	21 092 224	64,055	600,380	118.03	18.82
1982	582 283	21 674 507	100,537	700,917	173.57	27.58
1983	736 934	22 411 441	152,350	853,267	206.64	32.84
1984	793 286	23 204 727	169,296	1,022,563	214.04	34.02
1985	820 729	24 025 456	180,049	1,202,612	220.21	35.00
1986	823 322	24 848 778	95,337	1,297,949	114.66	18.23
1987	781 795	25 630 573	109,250	1,407,199	139.74	22.21
1988	768 494	26 398 459	78,600	1,485,799	102.27	16.25
1989	722 820	27 121 287	90,101	1,575,900	124.66	19.81

* Average Wellhead Price = Value of Sales / Volume Sold

VALUE OF OIL PRODUCTION IN MANITOBA
1951 - 1989

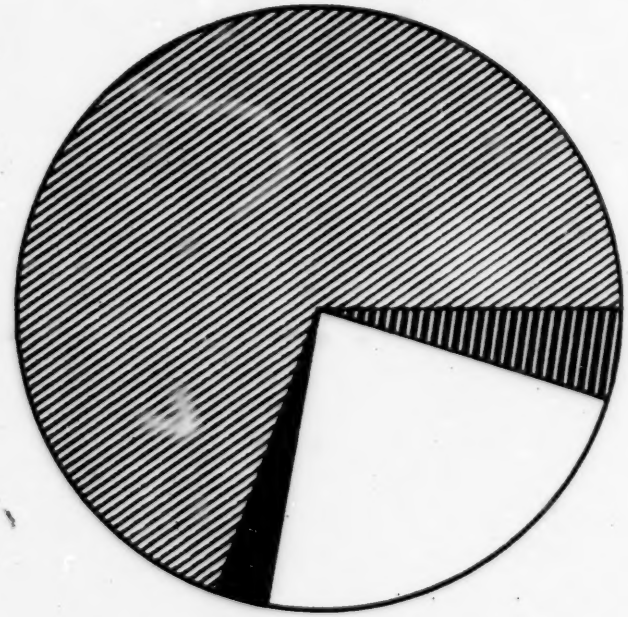


CROWN ROYALTIES AND TAXES FROM OIL PRODUCTION 1979 - 1989



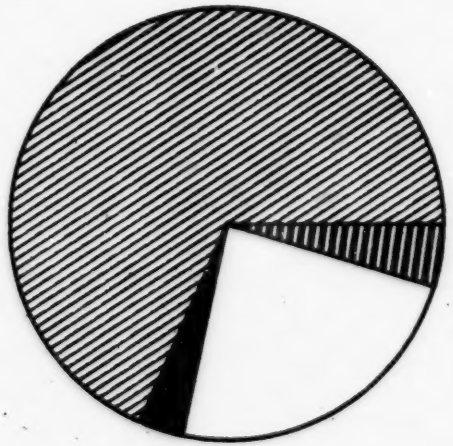
DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA

LEGEND
- FREEHOLD OIL TAX 69.4%
- FEES & RENTALS 2.7%
- CROWN ROYALTIES 23%
- LEASE BONUSES 4.9%



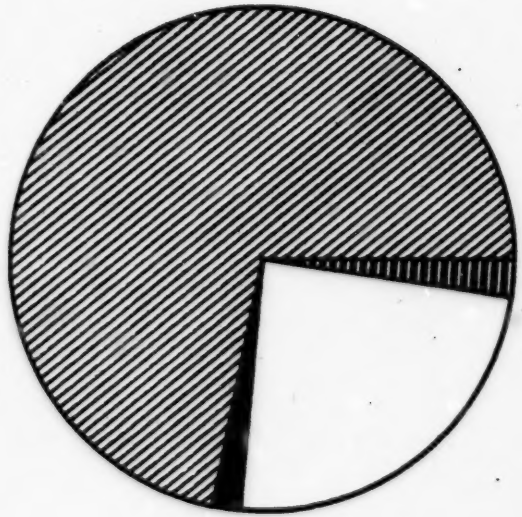
1987
TOTAL REVENUES
$11.93 MILLION

LEGEND
- FREEHOLD OIL TAX 68.4%
- FEES & RENTALS 3.3%
- CROWN ROYALTIES 23.7%
- LEASE BONUSES 4.7%



1988
TOTAL REVENUES
$8.57 MILLION

LEGEND
- FREEHOLD OIL TAX 71.7%
- FEES & RENTALS 1.8%
- CROWN ROYALTIES 24.1%
- LEASE BONUSES 2.4%



1989
TOTAL REVENUES
$9.43 MILLION

DIRECT REVENUES TO CROWN FROM OIL EXPLORATION AND DEVELOPMENT IN MANITOBA*
1951-1989

YEAR	CROWN ROYALTIES ($)	FREEHOLD OIL TAX ($)**	CROWN LEASE*** RENTAL ($)	CROWN LAND**** SALES ($)	MISCELLANEOUS FEES ($)	TOTAL DIRECT* REVENUES ($)
1951	2,000	--	4,000	--	5,000	11,000
1952	7,000	--	7,000	--	9,000	23,000
1953	50,000	46,000	6,000	--	8,000	110,000
1954	156,000	64,000	18,000	88,000	24,000	350,000
1955	230,000	92,000	69,000	627,000	10,000	1,028,000
1956	318,000	83,000	512,000	156,000	18,000	1,087,000
1957	382,000	126,000	421,000	110,000	--	1,039,000
1958	356,000	137,000	293,000	--	31,000	817,000
1959	344,000	165,000	201,000	14,000	2,000	726,000
1960	313,000	130,000	98,000	4,000	2,000	547,000
1961	306,000	105,000	93,000	135,000	5,000	644,000
1962	298,000	96,000	90,000	26,000	10,000	520,000
1963	276,000	91,000	47,000	40,000	3,000	457,000
1964	307,000	86,000	35,000	122,000	23,000	573,000
1965	344,000	84,000	62,000	102,000	3,000	595,000
1966	353,000	96,000	60,000	94,000	3,000	606,000
1967	370,000	111,000	56,000	83,000	10,000	630,000
1968	411,000	116,000	39,000	60,000	14,000	640,000
1969	405,000	128,000	31,000	84,000	4,000	652,000
1970	377,000	143,000	28,000	15,000	1,000	564,000
1971	373,000	143,000	21,000	34,000	2,000	573,000
1972	348,000	138,000	16,000	--	1,000	503,000
1973	404,000	144,000	15,000	--	2,000	565,000
1974	1,599,000	5,216,000	15,000	--	4,000	6,834,000
1975	1,823,000	6,498,000	12,000	--	1,000	8,334,000
1976	2,024,000	6,128,000	11,000	--	11,000	8,174,000
1977	2,263,000	7,012,000	10,000	--	3,000	9,288,000
1978	2,281,000	8,018,000	10,000	--	6,000	10,315,000
1979	2,280,000	8,769,000	44,000	944,000	12,000	12,049,000
1980	2,575,000	9,159,000	128,000	1,884,000	11,000	13,757,000
1981	2,715,000	10,005,000	186,000	1,692,000	12,000	14,610,000
1982	3,176,000	12,194,000	231,000	1,058,000	28,000	16,687,000
1983	4,135,000	14,825,000	270,000	1,076,000	59,000	20,365,000
1984	3,972,000	15,622,000	275,000	2,187,000	68,000	22,124,000
1985	4,413,000	15,133,000	307,000	4,224,000	89,000	24,166,000
1986	2,570,000	8,179,000	277,000	917,000	53,000	11,996,000
1987	2,746,000	8,278,000	273,000	580,000	55,000	11,932,000
1988	2,034,000	5,861,000	233,000	402,000	44,000	8,574,000
1989	2,273,000	6,757,000	130,000	234,000	37,000	9,431,000
Total	**49,609,000**	**149,978,000**	**4,634,000**	**16,992,000**	**683,000**	**221,896,000**

* Does not include corporate capital tax, sales tax, corporate and individual income tax or oil export tax.
** Now under the Oil and Gas Production Tax Act, Cap.037.
*** Includes only Rental Fees.
**** Includes Bonus and Application Fees.

Municipal Tax Assessments

Oil producers in Manitoba pay a municipal tax on production facilities, including: oil wells, batteries, salt water disposal wells, salt water disposal plants, water injection wells, suspended wells and pipelines.

The municipal tax assessment on these facilities for the calendar year 1989 was approximately $9.1 million dollars.

Actual tax revenue from these assessments should amount to approximately $1.8 million for affected municipalities.

Surface Owners

Prior to drilling a well, an oil company is required to negotiate a surface lease, which provides right of entry, with the landowner. The normal surface lease includes a first-year bonus payment and a subsequent annual rental fee for the duration of the lease.

Where the landowner is renting his land to another party, the oil company seeking right-of-entry must obtain the consent of both the landowner and the occupant.

After a lease has been signed, the landowner and occupant then determine what each will receive as his share of the compensation paid by the oil company.

In 1989, an estimated $2.7 million was paid by oil companies to landowners in the form of first-year bonuses ($0.3 million) and annual rental fees ($2.4 million).

Following proclamation of The Surface Rights Act on August 9, 1984, disputes relating to right-of-entry or compensation are referred to the Surface Rights Board. The Board's principal function is to arbitrate disputes between the petroleum industry and landowners regarding use of land for exploration, development and related operations and to determine what compensation should be paid to the landowner.

The Minister of Rural Development is responsible for the administration of The Surface Rights Act. The Board's office is located in Winnipeg.

Waskada Gas Plant

During 1989 the Waskada gas plant, now in its sixth year of production, processed 11 214.7 $10^3 m^3$ of raw gas or approximately 36% of capacity (capacity = 85 000 m^3/day). This resulted in the recovery of 8 008.8 m^3 of propane, butane and condensate, valued at approximately $300,000. Compared with 1988, volumes in 1989 increased by 58%. Of the total 8 008.8 m^3 produced, propane accounted for 55%, butane 21% and condensate 24%.

Manitoba Drilling Incentive Program (1979 - 1986)

The original "Manitoba Drilling Incentive Program" provided for reduced Crown oil royalty and freehold oil tax rates on oil produced from new wells. Wells drilled between January 1, 1979 and January 1, 1987, and producing from Crown mineral rights qualified for a special reduced royalty incentive rate which was 35% of the corresponding base royalty rate charged on "old oil".

New wells producing from freehold mineral rights were eligible for a corresponding incentive freehold oil tax rate under The Oil and Gas Production Tax Act.

The reduced royalty and tax rates applied to production from a new oil well during its respective "incentive period".

The incentive period earned for wells producing from provincial Crown mineral rights was called a "royalty incentive period" (RIP) whereas wells producing from freehold mineral rights earned a "production incentive period" (PIP).

As of December 31, 1989, 36 of the 1 581 wells capable of producing oil in the Province were operating under a drilling incentive period (25% under RIP and 75% under PIP).

It is estimated that since the program was implemented in 1979, the value of the incentive to industry has been in excess of $15.0 million.

The Drilling Incentive Program expired on December 31, 1986.

Manitoba Drilling Incentive Program (1987 - 1991)

The "new" Manitoba Drilling Incentive Program announced March 2, 1987 (effective January 1, 1987) replaces the previous program which expired on December 31, 1986. The new program provides greater incentives for drilling exploratory wells while also assisting development drilling.

With the new program, qualifying wells are provided with a royalty/tax free "holiday volume". The amount of "holiday volume" varies in response to oil prices and is dependent on the well's location, depth, producing formation and qualifying credits from previous dry holes. This represents a significant improvement over the previous program which provided operators with reduced royalty/tax rates for a period of time dependent only on well depth.

Each new oil well drilled in Manitoba after January 1, 1987, and prior to January 1, 1992, can earn a "holiday volume" of oil up to a maximum of 10 000 m^3 or 5 years of producion, whichever occurs first.

Since the inception of the program 172 wells have qualified to receive holiday oil volumes (116 or 67% are freehold wells and 56 or 33% are Crown wells). The average volume awarded per well has been 1 794.3 m^3. Fifty-two of the wells in the program have produced the holiday volume granted and are now considered to be "new oil" for royalty and tax purposes.

Enhanced Oil Recovery Incentive Program

An Enhanced Oil Recovery Incentive Program was established in 1987. The program works in the following manner: wells in new or enlarged enhanced oil recovery projects, approved after January 1, 1987, and fully implemented prior to January 1, 1992, are eligible for an incentive period of up to 60 months. During this time, operators benefit from reduced Crown royalty and tax rates on production from the projects.

Four enhanced oil recovery projects involving 69 tracts have received incentive periods under the program.

Oil Reserves

From 1973 to 1980, remaining established oil reserves in Manitoba declined at a rate of approximately 5% per year due to production and lack of new discoveries.

This trend began to reverse in 1980 as new discoveries were made in the Kirkella area. New discoveries in the Waskada area in 1981 further arrested the decline and as a result of additional development in the area in 1982 and 1983 reserves increased. This increase in the province's remaining established reserves followed more than 16 years of decline.

In 1986, remaining established oil reserves again began to decline. This declining trend has continued through 1989 and is a result of reduced drilling activity. During this period, additions to reserves have not kept pace with production.

As of December 31, 1989, the province's total remaining established oil reserves are estimated at 7.28 million cubic metres (45 million barrels) down 4.8% from 1988.

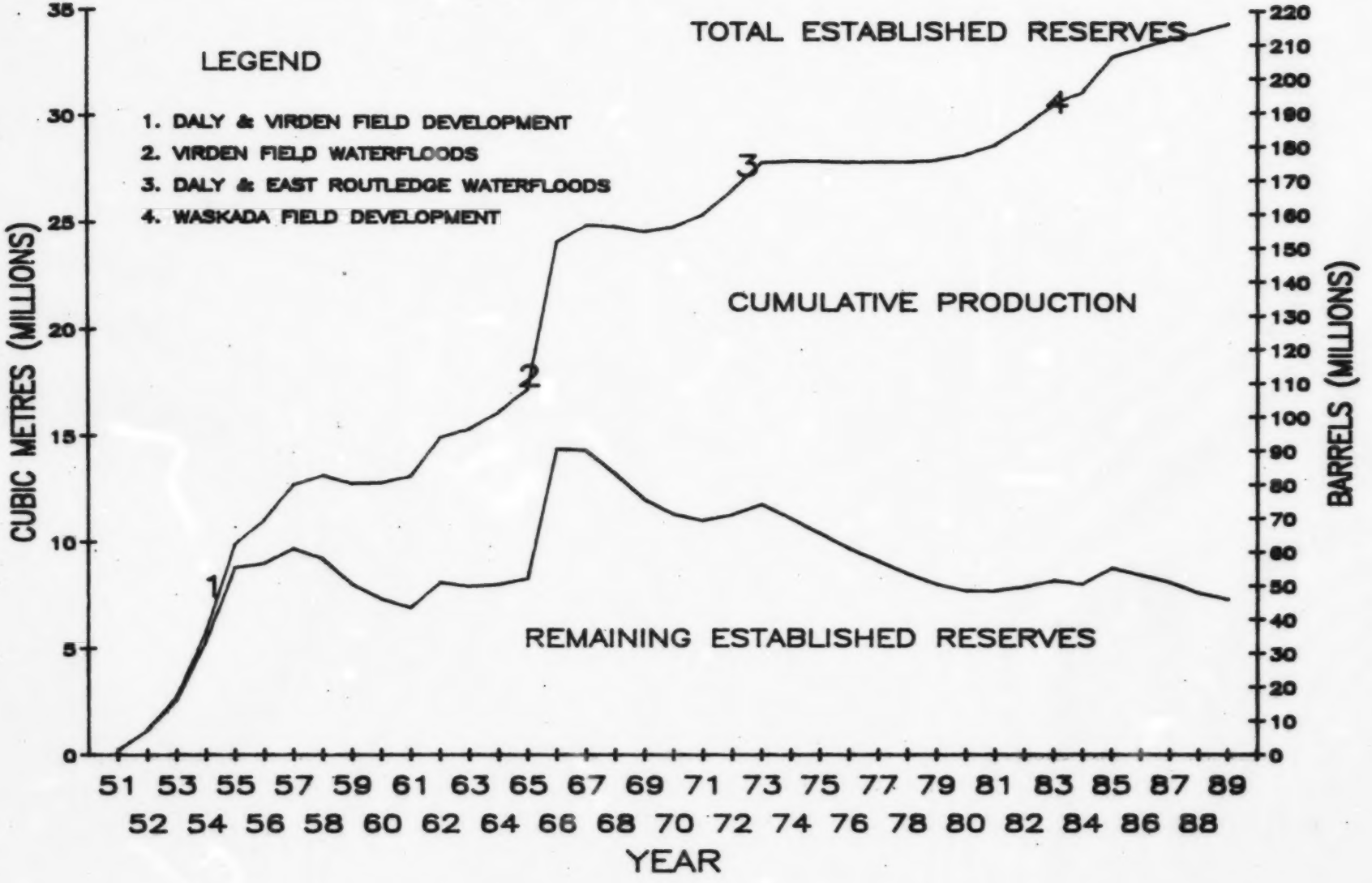
CRUDE OIL RESERVES IN MANITOBA

1973-1989

YEAR	PRODUCTION (m^3)	ESTABLISHED RESERVE ADDITIONS (m^3)	REMAINING ESTABLISHED RESERVES (m^3)	LIFE INDEX*
1973	807 882	Nil	11 798 000	14.60
1974	754 667	15 000	11 059 000	14.65
1975	701 459	4 000	10 362 000	14.77
1976	633 322	7 000	9 735 000	15.37
1977	630 466	15 000	9 120 000	14.46
1978	598 354	22 000	8 543 000	14.28
1979	583 377	24 000	7 984 000	13.64
1980	563 482	314 000	7 735 000	13.73
1981	542 695	544 000	7 736 000	14.25
1982	582 322	733 000	7 927 000	13.60
1983	736 934	954 000	8 154 000	11.06
1984	793 284	663 000	8 024 000	10.11
1985	820 729	1 628 000	8 831 000	10.76
1986	823 322	439 000	8 447 000	10.26
1987	781 806	401 000	8 066 000	10.32
1988	768 563	343 000	7 650 000	9.95
1989	722 820	353 000	7 284 000	10.08

*Remaining Established Reserves divided by Annual Production

MANITOBA ESTABLISHED OIL RESERVES (HISTORY)


LEGEND
1. DALY & VIRDEN FIELD DEVELOPMENT
2. VIRDEN FIELD WATERFLOODS
3. DALY & EAST ROUTLEDGE WATERFLOODS
4. WASKADA FIELD DEVELOPMENT
TOTAL ESTABLISHED RESERVES
CUMULATIVE PRODUCTION
REMAINING ESTABLISHED RESERVES
1
2
3
4
CUBIC METRES (MILLIONS)
BARRELS (MILLIONS)
0 5 10 15 20 25 30 35
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
YEAR

Petroleum Industry Employment

The precipitous fall and slow recovery in crude oil prices has not only affected activity levels and revenues but also employment levels in the industry.

In 1989 direct industry employment was approximately 250 person years, about the same level as 1988. Of this total, approximately 7% of the employment was attributed to geophysical and drilling activity, with the remaining 93% of employment associated with ongoing operation and maintenance functions of existing petroleum related facilities.

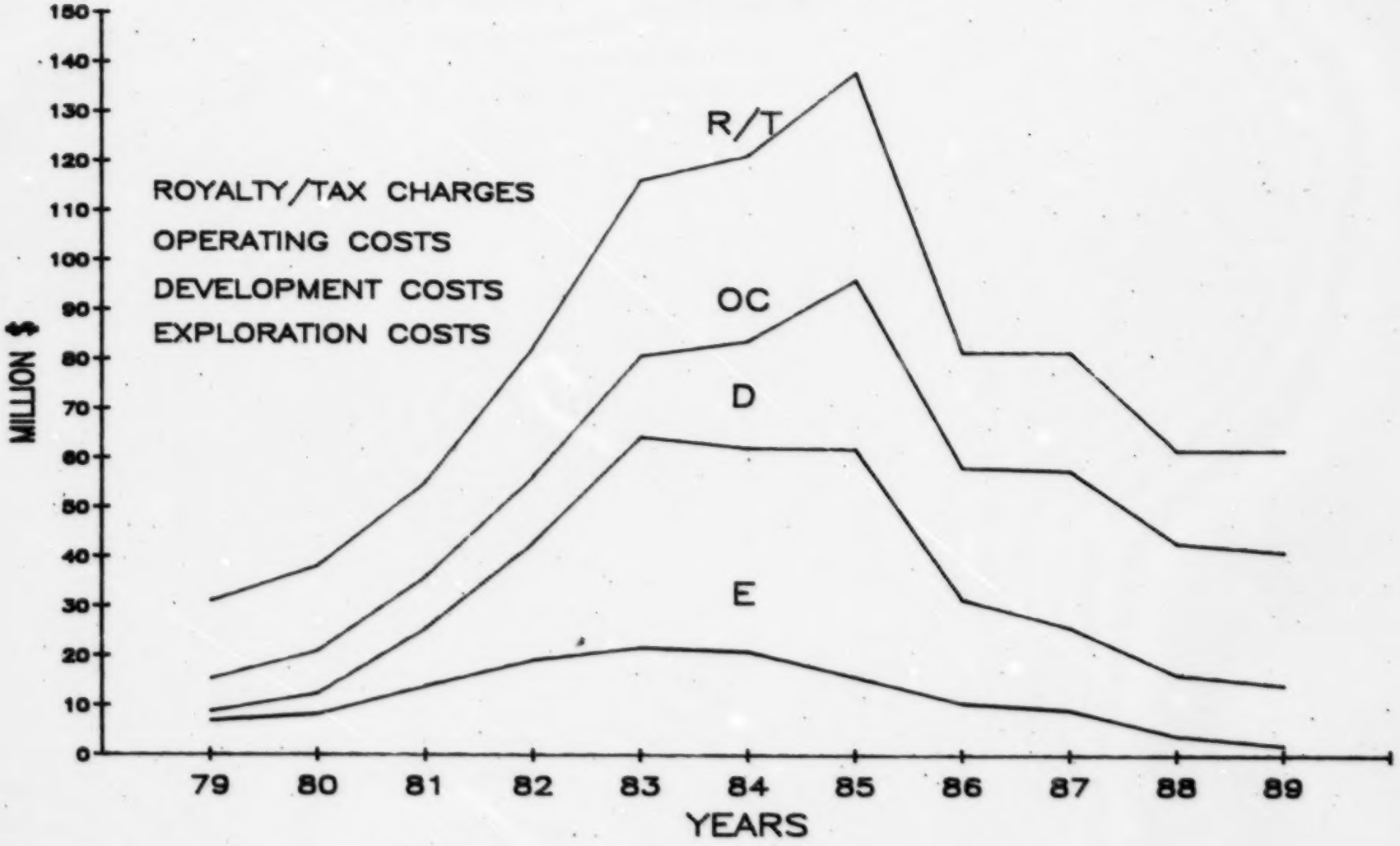
In addition to direct employment, there are indirect jobs created as a result of petroleum industry activity. For every 10 direct jobs created by the petroleum industry in 1989, there were between 10-15 indirect jobs created. This resulted in another 250-375 person years of indirect employment.

Industry Expenditures

As a result of reduced oil patch activity in Manitoba during 1989, it is estimated that industry spent $62 million in the province compared with $63 million in 1988. The total expenditures can be broken down into seven categories: exploration, development, land, producing facilities, producing costs, royalties and other.

- The exploration component which includes, exploratory drilling costs, geophysical and geological work amounted to approximately $2.0 million.
- Development costs include development drilling costs which accounted for approximately $8.6 million.
- Land costs were based on freehold and Crown mineral and surface rights acquisition costs, fees and rentals. The total estimated cost of this component amounted to $3.6 million.
- Producing facilities included mainly capital costs associated with field equipment and enhanced recovery schemes. Approximately $2.3 million were spent on this component.
- Production costs were valued at $24.7 million and include well operating, flow line and gas plant costs.
- Royalties included freehold production royalties, Crown production royalties and freehold oil taxes. It was estimated that this component was valued at $18.9 million for 1989.
- Other costs in total industry expenditure include municipal taxes, right-of-way acquisitions and miscellaneous expenditures totalling approximately $1.8 million.

PETROLEUM INDUSTRY EXPENDITURES IN MANITOBA 1979 - 1989 (MILLIONS $)



1990 FORECAST

Petroleum exploration activity in Manitoba is expected to remain at relatively low levels.

Crown land sales are expected to generate between $0.3 - 0.5 million compared with 1989's figure of $0.24 million.

It is not expected that more than five geophysical programs will be conducted in 1990.

Drilling performance so far in the first quarter of 1990 has been good. Development drilling in Manitoba is expected to be quite active resulting in an increase in the total number of wells drilled. Activity will be concentrated in the South Pierson, Waskada and Daly Fields.

It is estimated that 75 to 100 wells will be drilled in 1990.

In addition, there is a possibility that the recent success of horizontal drilling programs in southeastern Saskatchewan may result in application of this technology in Manitoba.

It is anticipated that a number of new or expanded pressure maintenance projects will be initiated in 1990, including Manitoba's first waterflood in the Bakken Formation.

With increased drilling and pressure maintenance in 1990, crude oil production is expected to increase slightly from 1989 levels to about 740 000m^3 compared with 722 820 m^3 in 1989.

Crude oil prices are expected to fluctuate in the range $105.00 ($16.69 Cdn. per barrel) - $155.00/$m^3$ ($24.63 Cdn. per barrel) but should average the year out at $130.00/$m^3$ (20.66 Cdn. per barrel), up from 1989's average of $124.66/$m^3$ ($19.81 Cdn. per barrel).

The value of crude oil production is forecast to be approximately $104 million in 1990.

Associated with production value are direct revenues to the Crown in the form of Crown royalties and oil taxes. These are expected to be in the range of $2.5 - 2.7 million for Crown royalties and $7.0 - 8.0 million for freehold oil taxes.

MANITOBA OIL FIELDS - 1989

	DALY	TILSTON	WASKADA	LULU LAKE	VIRDEN	WHITE-WATER	PIERSON	KIRKELLA	SOURIS HARTNEY	COULTER	SOUTH PIERSON	REGENT	OTHER AREAS	CONF. WELLS	TOTAL
DISCOVERY YEAR	1951	1952	1952	1953	1953	1953	1954	1957	1962	1952	1961	1955	--	--	--
AVG. DEPTH TO PRODUCING FORMATION (m)	769	945	923	1 000	630	785	1 003	738	655	970	990	770	--	--	--
PRODUCING FORMATION	L/B	MC	MC/LAm	L	L	LAm/L	MC/LAm	L	L	MC/LAm	MC/LAm	L	LAm MC/L	--	--
WELL SPACING (ha)	16	16	16	16	16/8	16	16	16	32	16	16/32	16	16	--	--
WELLS CAPABLE OF OIL PROD. (DEC. 1989)	404	20	379	7	573	27	53	35	8	9	33	12	14	7	1 581
OIL WELLS PROD. (DEC. 1989)	351	16	294	7	525	25	47	22	6	4	27	10	12	7	1 353
1989 OIL PROD. (m^3)	143 765	4 674	183 877	2 967	291 767	13 394	20 362	9 823	2 090	555	31 861	5 188	7 254	5 244	722 821
CUM. OIL PROD. (DEC. 31, 1989) (m^3)	4 459 355	121 355	1 858 851	60 189	19 474 210	178 288	392 930	252 812	139 630	11 535	103 464	24 829	38 595	5 244	27 121 287
REMAINING ESTABLISHED RESERVES(m^3) (DEC. 31, 1989) (000's m^3)	1 248.2	14.9	1 637.1	19.7	3 806.5	41.3	210.5	30.0	26.6	.4	216.4	8.4	24.3	0	7 284.3

L = Lodgepole
LAm = Lower Amaranth
MC = Mission Canyon
B = Bakken

GEOLOGICAL FORMATIONS IN MANITOBA

AGE Millions of years before present	ERA	PERIOD	EPOCH	FORMATION	MEMBER	MAX. THICK. (m)	BASIC LITHOLOGY
	CENOZOIC	QUATERNARY	RECENT				TOP SOIL, DUNE SANDS
			PLEISTOCENE	GLACIAL DRIFT		140	CLAY, SAND, GRAVEL, BOULDERS, PEAT
		TERTIARY	PLIOCENE				
			MIOCENE				
			OLIGOCENE				
50			EOCENE				
			PALEOCENE	TURTLE MTN.	PEACE GARDEN	120	SHALE, CLAY AND SAND. LIGNITE BEDS LOCATED ONLY IN TURTLE MOUNTAIN
65					GOODLANDS		
	MESOZOIC	CRETACEOUS	UPPER	BOISSEVAIN		30	SAND AND SANDSTONE, GREENISH GREY, LOCATED ONLY IN TURTLE MOUNTAIN
				RIDING MTN.	[illegible]	310	GREYSHALES—NON-CALC. LOCAL IRONSTONE BENTONITE NEAR BASE, GAS FOUND
				VERMILION RIVER	PEMBINA	155	SHALE DARK GREY CARBONACEOUS NON-CAL. BENTONITE BANDS
					BOYNE		SHALE GREY SPECKLED CALC. BENTONITIC SLIGHTLY PETROLIFEROUS
					MORDEN		SHALE DARK GREY NON-CALC. CONCRETIONS, LOCAL ANL SILT
			CRETACEOUS	FAVEL		40	GREY SHALE WITH HEAVY CALCAREOUS SPECKS SANDS LIMESTONE AND BENTONITE
100				ASHVILLE		115	SHALE, DARK GREY, NON-CALC. SILTY
			LOWER	ASHVILLE SAND			"SAND ZONE" 27m F.G. QTZ. S. OR SS
			CRETACEOUS	SWAN RIVER		75	SANDSTONE AND SAND, QTZ. PYRITIC SHALE—GREY, NON-CALC
150		JURASSIC	UPPER JURASSIC	WASKADA		200	SANDED-GREEN SHALE AND CALC. SANDSTONE
				MELITA			BANDS OF LIMESTONE, VARI-COLORED SHALE
			MIDDLE JURASSIC	RESTON		45	LIMESTONE, BUFF, AND SHALES, GREY
				AMARANTH	UPPER EVAPORITE	45	WHITE ANHYDRITE AND/OR GYPSUM AND BANDED DOLOMITE AND SHALE
200					LOWER RED BEDS	42	RED SHALE TO SILTSTONE-DOLOMITIC OIL PRODUCING
		TRIASSIC					
	PALEOZOIC	PERMIAN	(?)	ST. MARTIN COMPLEX		300	CARBONATE BRECCIA, TRACHYANDESITE (CRYPTO-EXPLOSION STRUCTURE)
250		PENNSYLVANIAN					
		MISSISSIPPIAN		MADISON GROUP — CHARLES		30	MASSIVE ANHYDRITE AND DOLOMITE
300				MISSION CANYON	MC—5	120	LIMESTONE—LIGHT BUFF, OOLITIC FOSS. FRAG., CHERTY, BANDS SHALE AND ANHYDRITE. OIL PRODUCING
					MC—4		
					MC—3		
					MC—2		
					MC—1		
				LODGEPOLE	FLOSSIE LAKE	155	LIMESTONE & ARG. LIMESTONE LIGHT BROWN AND REDDISH MOTTLED. ZONES OF SHALEY, OOLITIC, CRINOIDAL & CHERTY OIL PRODUCING
					WHITEWATER LAKE		
					VIRDEN		
					SCALLION / NISKU		
				BAKKEN	UPPER	20	2 BLACK SHALE ZONES - SEPARATED BY SILTSTONE OIL SHOW HIGH R.A. KICK
					MIDDLE		
					LOWER		
350		DEVONIAN		LYLETON (SASK. GROUP)		35	RED SILTSTONE AND SHALE DOLOMITIC
				NISKU (SASK. GROUP)		40	LIMESTONE & DOLOMITE, YELLOW-GREY FOSS. POROUS, SOME ANHYD
				DUPEROW (SASK. GROUP)		170	LIMESTONE & DOLOMITE, ARG. & ANHYDRITIC IN PLACES
				SOURIS RIVER 1-ST RED (MAN. GROUP)		120	CYCLICAL SHALE, LIMESTONE & DOLOMITE ANHYDRITE
				DAWSON BAY 2-ND RED (MAN. GROUP)		65	LIMESTONE & DOLOMITE, PUROUS, ANHYDRITE—LOCAL SHALE RED & GREEN
				ELK POINT G. — PRAIRIE EVAP		130	SALT POTASH & ANHYDRITE, DOLOSITE INTER—BEDDED
				WINNIPEGOSIS		75	DOLOMITE, LIGHT YELLOWISH BROWN REEFY
				ELM POINT			LIMESTONE—FOSS. HIGH CALCIUM
400				ASHERN		12	DOLOMITE AND SHALE—BRICK RED
		SILURIAN		INTERLAKE GROUP		135	DOLOMITE YELLOWISH—ORANGE TO GREYISH—YELLOW FOSS. SILTY ZONES
		ORDOVICIAN		STONEWALL		15	DOLOSTONE, GREYISH YELLOW, BEDDED
				STONY MOUNTAIN	WILLIAMS	30	DOLOMITE—YELLOWISH—GREY SHALEY
					GUNTON		DOLOMITE—SHALEY—YELLOW FOSS.
					PENITENTIARY	30	SHALE RED—GREEN FOSS. LIMESTONE BANDS
450				RED RIVER	DUNDAS	170	DOLOMITIC LIMESTONE, MOTTLED AND DOLOMITE
					FORT GARRY		
					ROSELAND		
					CAT HEAD		
					DOG HEAD		
				WINNIPEG	UPPER UNIT	60	SHALE, GREEN, WAXY, SANDSTONE INTERBEDDED
500					SANDSTONE		SAND, SANDSTONE, QUARTZOSE
550		CAMBRIAN		DEADWOOD		60	SAND, BLACK TO GREEN—GREY WAXY, GLAUCONITIC SILTSTONE & SHALE, GREEN—GREY TO BLACK, VERY EDGE OF S.W. MANITOBA ONLY.
	PRECAMBRIAN						ACID & BASIC CRYSTALLINES & METAMORPHICS